

Noise Impact Assessment External Seating

Harbour Lights, Paignton, TQ4 6DU



On Behalf of Design Management Partnership Ltd
8 Trade Street
Cardiff
CF10 5DT

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	Name	Position	Signature
Prepared by	Peter Ashford BSc MloA ANC	Managing Director	
Reviewed by	John Hammond TechIOA	Senior Acoustician	

Revision	Date	Description

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1 Executive Summary

Planning permission has been sought from Torbay Council for *internal and external alterations, additional external terrace area, external store areas and seating areas. New condenser units and structural alterations* at Harbour Light Restaurant North Quay Roundham Road Paignton Torbay TQ4 6DU (application No. P/2019/0238). This application has now received consent from the local Authority.

Subsequently the local Authority have requested that a separate planning application should be made for the outside seating areas and a secondary planning application the *formation of external seating areas to front & side with terrace* (PP-08133125) has now been submitted but not yet validated and on 9th September Torbay Council requested that additional information should be provided in order for the planning application to be validated, part of which was the need for a *Noise Impact Assessment* for the proposed development.

This report sets out the results from a six-day sound survey on the rear terrace of the closest residential neighbour's property, Harbour Cottage, which overlooks the Harbour Light restaurant building. This shows that despite the quay having nothing to draw people to the area in the evening, the Harbour Lights Restaurant has been closed for some time, mean sound levels were 55 dB at 9pm and 53 dB $L_{Aeq,1hr}$ up to 11pm.

The proposal is to place eight picnic style round tables (seating up to 8 people) and eight benches (seating up to 4 people) as well as ten small tables (seating up to 2 people), to the west of the restaurant. It is proposed that customers will be served here up to 9pm only.

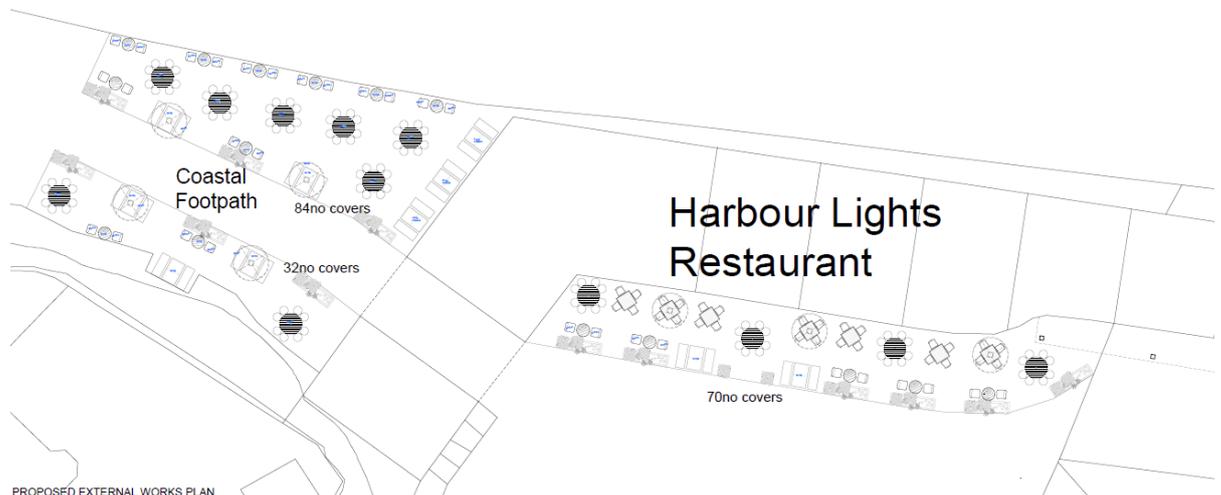
It is also proposed that more external seating is provided on the southern side of the restaurant building, overlooking the harbour, with four picnic benches, four tables for 4 and five tables for 2, this area being more remote that customers could use these up to 11pm, in good weather.

Noise modelling software has been used to assess sound levels from customer voices, sat at these tables, at the neighbours and these have been compared with the existing sound levels, at the neighbours, to estimate their impact.

These calculations have allowed for normal conversational voices as well as when voices are raised with various occupation rates and show that in the very worst case, when all tables are fully occupied with customers with raised voices right up to 9pm in the evening the maximum excess will be only 4 dB. More likely that there will be no excess at all, over existing levels, and therefore the use of the proposed external seats will have a negligible impact and meet local and National planning criteria.

2 Proposed External Seating

The proposed outside seating is shown on DMP's drawing 17.097.211E an extract of this is shown below and complete at the rear of this report;



The proposal is to place eight picnic style round tables (seating up to 8 people) and eight benches (seating up to 4 people) as well as ten small tables (seating up to 2 people), to the west of the restaurant. It is proposed that customers will be served here up to 9pm only.

It is also proposed that more external seating is provided on the southern side of the restaurant building, overlooking the harbour, with four picnic benches, four tables for 4 and five tables for 2, this area being more remote that customer could use these up to 11pm, in good weather.

The operators of the Harbour Light Restaurant have confirmed their intended use of the garden will be;

- To provide additional external eating area, which will be used by customers during the summer,
- The garden will not be lit,

The Harbour Light Restaurant will be open from 9am to 11pm with food being served from 12 noon through to 9pm every day. The pub will be a "foodie" establishment and does not rely on music (live or recorded) to drive trade.

The external seating and eating areas are used during the warmer months of the year, typically March through to October.

3 Sound Survey

3.1 Existing sound levels at the neighbours

A sound level meter was set up on site, during the afternoon of Thursday 15th August 2019, one on the terrace of Harbour Cottage overlooking the restaurant and left to record sound levels unattended through to the following Wednesday.

The aerial view below shows the location for the sound level meter;



The photograph below shows the microphone on a tripod;

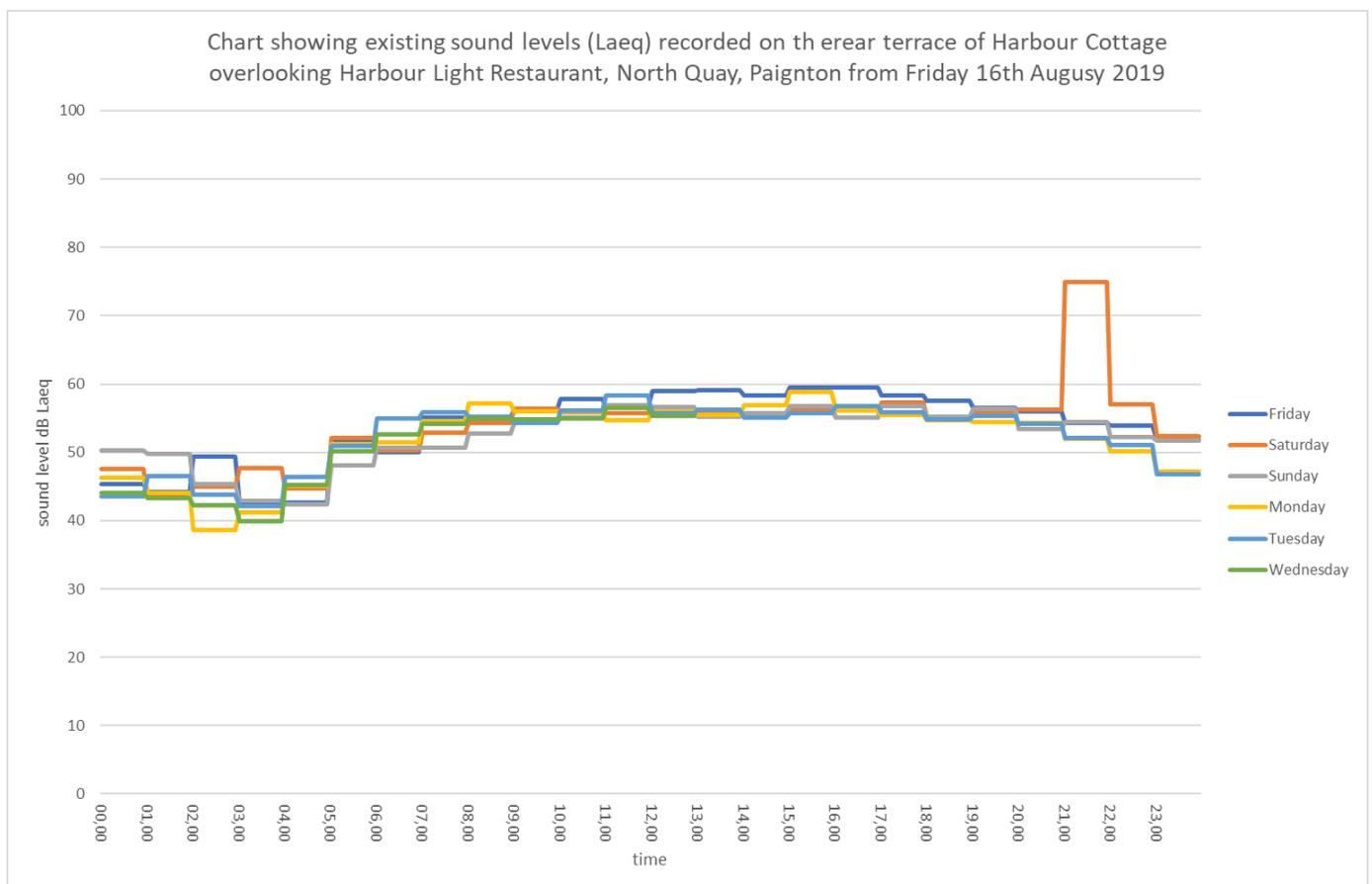


The weather¹ during this period was largely fine with little wind and generally suitable for repeatable environmental sound measurement.

The sound meter/pre-amp/microphone were calibrated using a hand held calibrator before and after the survey, with no adverse variants being observed. Details of the equipment used are given in the table below.

Meter Make	Model	Serial No.	Calibration Date	Calibration Certificate No.	Calibration due date
Rion	NL32	01273081	15-3-18	TCRT18/1219	15-3-20
Rion	NC74	34794316	9-5-19	TCRT19/1277	9-5-20

The chart below shows the $L_{Aeq, 1hr}$ levels recorded at Harbour Cottage;



The daily levels show a good degree of consistence during the hours of interest when the restaurant will be serving during the day through to the evening. A cause for the peak at 9pm on Saturday night is not known and is considered erroneous.

Mean sound levels were 60 dB at lunch time, 55 dB at 9pm and 53 dB $L_{Aeq, 1hr}$ up to 11pm.

¹ <https://www.timeanddate.com/weather/@2640681/historic?month=8&year=2019>

These levels will be used in the assessment of impact set out in the following sections of this report.

3.2 Customer voices

The impact of customer voices, on the neighbours, using the garden will be dependent on several factors;

- How many people are in the external seating areas and how loud their voices are,
- How close they are to neighbours,
- How quiet the background sound level is.

In order to assess the level of sound generated by customers using this type of external seating measurements have been taken at a similar establishment in Exeter, the Mill on the Exe, where sound levels were witnessed and recorded. These are summarised below;

- Customer “normal” voice levels were typically 68 dB L_{WA} per table (8 seats), 66 dB L_{WA} (4 seats) & 63 dB L_{WA} (2 seats)
- Customer “raised” voices were typically 8 dB louder per table,

These levels will be used in the assessment of impact set out in the following sections of this report.

4 Noise & Planning

4.1 National Planning Policy Framework

The recently introduced National Planning Policy Framework (March 2012) defines the Government’s planning policies for England and how these are expected to be applied. It sets out the Government’s requirements for the planning system only to the extent that it is relevant, proportionate and necessary to do so. It provides a framework within which local people, and their answerable councils can produce their own distinctive local and neighbourhood plans, which reflect the needs and priorities of their communities.

Section 123 states;

Planning policies and decisions should aim to:

- *avoid noise from giving rise to significant adverse impacts on health and quality of life as a result of new development;*
- *mitigate and reduce to a minimum other adverse impacts on health and quality of life arising from noise from new development, including through the use of conditions;*
- *recognise that development will often create some noise and existing businesses wanting to develop in continuance of their business should not have unreasonable restrictions put on them because of changes in nearby land uses since they were established; and*

- *identify and protect areas of tranquility which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason.*

The Framework states that the planning system should contribute to and enhance the natural and local environment by preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of noise pollution. It does not, however, provide any specific formal guidelines.

4.2 Noise Policy Statement for England (NPSE)

The document "Noise Policy Statement for England", referenced within the NPPF sets out the following vision for on-going noise policy:

*"Promote good health and quality of life through the effective management of noise within the context of Government policy on sustainable development."
This vision should be achieved through the following Noise Policy Aims:
"Through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development: avoid significant adverse impacts on health and quality of life; mitigate and minimise adverse impacts on health and quality of life; and where possible, contribute to the improvement of health and quality of life".*

To achieve these objectives, the Noise Policy Statement sets out three noise levels to be defined by the assessor:

- **NOEL** - No Observed Effect Level

This is the level below which no effect can be detected. In simple terms, below this level there is no detectable effect on health and quality of life due to the noise.

- **LOAEL** - Lowest Observed Adverse Effect Level

This is the level above which adverse effects on health and quality of life can be detected.

- **SOAEL** - Significant Observed Adverse Effect Level

This is the level above which significant adverse effects on health and quality of life occur.

The Noise Policy Statement considers that noise levels above the SOAEL would be seen to have, by definition, significant adverse effects and would be considered unacceptable. Where the assessed noise levels fall between the LOAEL and the SOAEL noise levels, the Policy Statement requires that:

"all reasonable steps should be taken to mitigate and minimise adverse effects on health and quality of life while also taking into account the guiding principles of sustainable development... .. This does not mean that such adverse effects cannot occur."

Where noise levels are below the LOAEL it is considered there will be no adverse effect. Once noise levels are below the NOEL there will be no observable change. No objective values are offered within the NPSE, as the document does indicate that each site should be considered on its own merits.

Guidance as to a numerical definition of LOAEL may therefore be given by the following Standards.

4.3 DCLG Guidance Note, 2013 - 'Noise'

The Department of Communities and Local Government provided further guidance to support the NPPF. The section, Noise, published in August 2013 advises:

Noise needs to be considered when new developments may create additional noise and when new developments would be sensitive to the prevailing acoustic environment. When preparing local or neighbourhood plans, or taking decision about new development, there may also be opportunities to consider improvements to the acoustic environment.

Noise may override other planning concerns in certain circumstances, neither the Noise Policy Statement for England nor the National Planning Policy Framework (which reflects the Noise Policy Statement) expects noise to be considered in isolation, separately from the economic, social and other environmental dimensions of proposed development.

Local planning authorities' plan-making and decision taking should take account of the acoustic environment and in doing so consider:

- *whether or not a significant adverse effect is occurring or likely to occur;*
- *whether or not an adverse effect is occurring or likely to occur; and*
- *whether or not a good standard of amenity can be achieved.*

This would include identifying whether the overall effect of the noise exposure is, or would be, above or below the significant observed adverse effect level and the lowest observed adverse effect level for the given situation.

At the lowest extreme, when noise is not noticeable, there is by definition no effect. As the noise exposure increases, it will cross the no observed effect level as it becomes noticeable. However, the noise has no adverse effect so long as the exposure is such that it does not cause any change in behaviour or attitude. The noise can slightly affect the acoustic character of an area but not to the extent there is a perceived change in quality of life. If the noise exposure is at this level no specific measures are required to manage the acoustic environment.

As the exposure increases further, it crosses the lowest observed adverse effect level, for example, having to turn up the volume on the television or needing to speak more loudly to be heard. The noise therefore starts to have an adverse effect and consideration needs to be given to mitigating and minimising those effects

(taking account of the economic and social benefits being derived from the activity causing the noise). Increasing noise exposure will at some point cause the significant observed adverse effect level boundary to be crossed. Above this level the noise causes a material change in behaviour such as keeping windows closed for most of the time or avoiding certain activities during periods when the noise is present. 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. Such decisions must be made taking account of the economic and social benefit of the activity causing the noise, but it is undesirable for such exposure to be caused.

At the highest extreme, noise exposure would cause extensive and sustained change in behaviour without an ability to mitigate the effect of noise. The impacts on health and quality of life are such that regardless of the benefits of the activity causing the noise, this situation should be prevented from occurring.

The table below summarises the noise exposure hierarchy, based on the likely average response:

Perception	Examples of Outcomes	Increasing Effect Level	Action
Not noticeable	No effect	No Observed Effect	No specific measures required
Noticeable and not intrusive	<i>Noise can be heard, but does not cause any change in behaviour or attitude. Can slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life.</i>	<i>No Observed Adverse Effect</i>	No specific measures required
		Lowest Observed Adverse Effect Level	
Noticeable and intrusive	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.	Observed Adverse Effect	Mitigate and reduce to a minimum
		Significant Observed Adverse Effect Level	
Noticeable and disruptive	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	Significant Observed Adverse Effect	Avoid
Noticeable and very disruptive	<i>Extensive and regular changes in behaviour and/or an inability to mitigate effect of noise leading to psychological stress or physiological effects, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory</i>	<i>Unacceptable Adverse Effect</i>	<i>Prevent</i>

The subjective nature of noise means that there is not a simple relationship between noise levels and the impact on those affected. This will depend on how various factors combine in any particular situation. These factors include:

- *the source and absolute level of the noise together with the time of day it occurs. Some types and level of noise will cause a greater adverse effect at night than if they occurred during the day – this is because people tend to be more sensitive to noise at night as they are trying to sleep. The adverse effect can also be greater simply because there is less background noise at night;*
- *for non-continuous sources of noise, the number of noise events, and the frequency and pattern of occurrence of the noise;*
- *the spectral content of the noise (i.e. whether or not the noise contains particular high or low frequency content) and the general character of the noise (i.e. whether or not the noise contains particular tonal characteristics or other particular features). The local topology and topography should also be taken into account along with the existing and, where appropriate, the planned character of the area.*

The adverse effects of noise may be mitigated in one of the four broad approaches:

- *engineering;*
- *layout;*
- *using planning conditions/obligations to restrict activities; and*
- *mitigating the impact on areas likely to be affected by noise.*

The noise impact on residential developments may be partially off-set if the residents of those dwellings have access to:

- *a relatively quiet facade (containing windows to habitable rooms) as part of their dwelling, and/or;*
- *a relatively quiet external amenity space for their sole use, (e.g. a garden or balcony). Although the existence of a garden or balcony is generally desirable, the intended benefits will be reduced with increasing noise exposure and could be such that significant adverse effects occur, and/or;*
- *a relatively quiet, protected, nearby external amenity space for sole use by a limited group of residents as part of the amenity of their dwellings, and/or;*
- *a relatively quiet, protected, external publically accessible amenity space (e.g. a public park or a local green space designated because of its tranquility) that is nearby (e.g. within a 5 minutes walking distance).*

4.4 BS8233:2014

Guidance is given in Table 4 of BS8233:2014 (Guidance on sound insulation and noise reduction for buildings) for “good” external sound levels for residential enjoyment is 50 to 55 dB $L_{Aeq,1hr}$ up to 11pm.

4.5 Significance Criteria

The impact of the noise due to the potential development on noise levels at sensitive receptors has been assessed with reference to the baseline environment. In terms of general perception of sound, the noise level changes in Table 5 can be referenced (adapted from the Institute of Acoustics and Institute of Environmental Management & Assessment, Guidelines for Noise Impact Assessment 2002) to give the magnitude or scale of impact.

Table 4.5: General Methodology for Assessing Scale of Impact

Scale of Impact	Noise Level Change in dB (A)
Substantial Adverse	5+
Moderate Adverse	3-5
Slight Adverse	1 – 3
Negligible	< 1

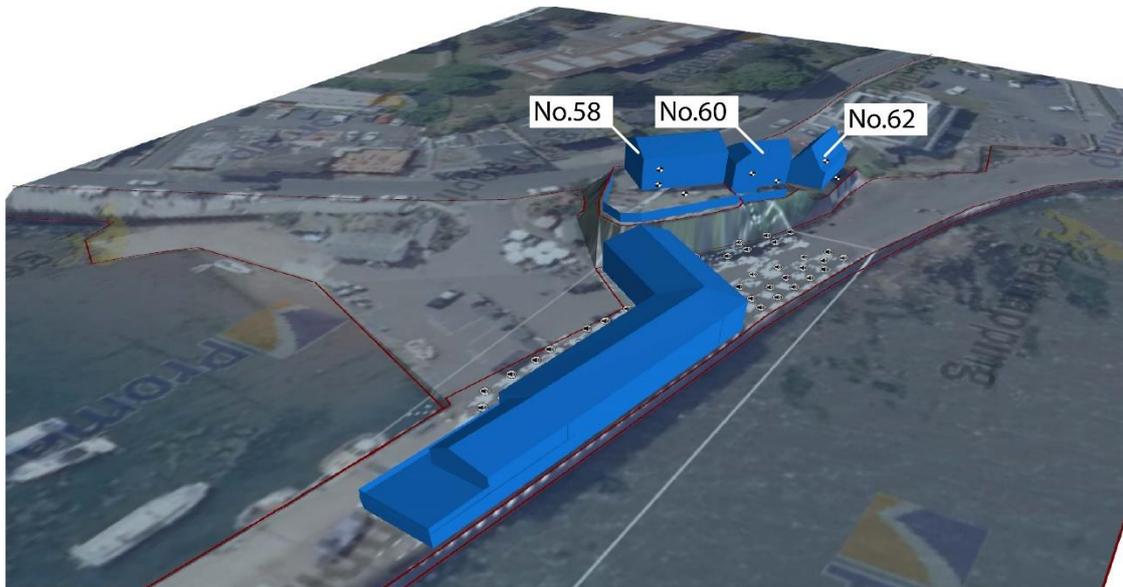
5 Predicted customer voice levels at the neighbours

The level of customer voices arriving at the neighbours, Harbour Cottage, can be estimated using Wolfe IMMI 3-D computer noise modelling software, which implements the calculation procedures set out in ISO 9613-2:1996 (Acoustics - Attenuation of sound during propagation outdoors - Part 2: General method of calculation). As well as the amendment contained within ISO/TR 17534-3:2015 (Acoustics - Software for the calculation of sound outdoors - Part 3: Recommendations for quality assured implementation of ISO 9613-2 in software according to ISO 17534-1).

It is not realistic to base this noise model on all the proposed seats being occupied all of the time and some assumption of what is likely to occur need to be made, namely;

- The seating areas will only be occupied when its warm and dry,
- It will be warmer at lunch time than in the evening and the external areas will only likely to be full for the lunch service and for the purposes of this estimate only half occupied in the evening in the last hour of trading, up to 9pm with the southern side seating only quarter occupied up to 11pm,

The image below shows a 3D image from the computer model identifying the overlooking neighbours;



The table below shows the predicted voice levels at the neighbours along with the increase these voices will have over the measured existing sound levels, for part and fully occupied tables;

Table 5.1 for Normal Voices

Location	Lunch time 1 pm				Evening up to 9pm				Late evening up to 11pm			
	50% ²	Increase	100%	increase	50%	Increase	100%	increase	25%	Increase	100%	increase
	Laeq,1hr dB	dB	Laeq,1hr dB	dB	Laeq,1hr dB	dB	Laeq,1hr dB	dB	Laeq,1hr dB	dB	Laeq,1hr dB	dB
mean existing levels	60				55				52			
No. 58 Roundham Rd terrace	33	0	36	0	33	0	36	0	23	0	28	0
No. 58 Roundham Rd GF	31	0	34	0	31	0	34	0	24	0	29	0
No. 58 Roundham Rd 1st	38	0	41	0	38	0	41	0	32	0	37	0
No. 60 Roundham 1st	45	0	48	0	45	0	48	1	21	0	26	0
No. 60 Roundham Rd GF	38	0	41	0	38	0	41	0	15	0	20	0
No. 62 Roundham Rd 1st	42	0	45	0	42	0	45	0	14	0	19	0
No. 62 Roundham Rd GF	42	0	45	0	42	0	45	0	19	0	24	0

² Assumed percentage occupancy

Table 5.2 for Raised Voices

Location	Lunch time 1 pm				Evening up to 9pm				Late evening up to 11pm			
	50%	Increase	100%	increase	50%	Increase	100%	increase	25%	Increase	100%	increase
	Laeq,1hr dB	dB	Laeq,1hr dB	dB	Laeq,1hr dB	dB	Laeq,1hr dB	dB	Laeq,1hr dB	dB	Laeq,1hr dB	dB
mean existing levels	60				55				52			
No. 58 Roundham Rd terrace	41	0	44	0	41	0	44	0	31	0	36	0
No. 58 Roundham Rd GF	39	0	42	0	39	0	42	0	32	0	37	0
No. 58 Roundham Rd 1st	46	0	49	0	46	1	49	1	40	0	45	1
No. 60 Roundham 1st	53	1	56	2	53	2	56	4	29	0	34	0
No. 60 Roundham Rd GF	46	0	49	0	46	1	49	1	23	0	28	0
No. 62 Roundham Rd 1st	50	0	53	1	50	1	53	2	22	0	27	0
No. 62 Roundham Rd GF	50	0	53	1	50	1	53	2	27	0	32	0

< 1 dB	negligible
1 - 3 dB	slight adverse
3 - 5 dB	moderate

Table 5.1, for Normal Voices, shows that if 100% occupancy at lunch time is assumed, 50% up to 9pm and 25% up to 11pm (southern seating area only) then there will be no increase in the existing sound levels for any of the neighbours and therefore *no impact*. Even with 100% occupancy assumed at all times the only increase, over existing, would occur at 1st floor window level of 58 Roundham Road and then only by 1 dB, with would be described as a *negligible impact*.

Table 5.2, for Raised voices, shows the same information again if 100% occupancy at lunch time is assumed, 50% up to 9pm and 25% up to 11pm (southern seating area only) the maximum increase will be no more than 2 dB at any of the neighbours and consequently no more than a *slight adverse impact*. If all the tables are occupied with customer with raised voices all of the time the maximum increase will be 4 dB at the rear first floor windows of 60 Roundham Road. A 4 dB increase is described as a *moderate adverse impact*.

6 Discussion of Impacts

The noise modelling has shown that in the worst case any increase in sound levels at nearest neighbour will be no more than 4 dB at the first floor window level, but would more likely and would more typically be less than 1 dB.

6.1 BS8233

The impact can be seen by reference to absolute levels, which externally are no more than 56 dB $L_{Aeq,T}$ in the worst case (raised voices) and 48 dB $L_{Aeq,T}$ (normal voices) within the derived “good” external noise criteria from BS8233:2014 of 55 dB $L_{Aeq,7am\ to\ 11pm}$ for the “day time” use of the garden which will be no later than the 10pm.

6.2 Significance Criteria

With sound levels increasing no more than 4 dB, even if it is assumed that all seats are occupied with customers speaking with raised voices, at this unrealistic worst case would give rise to a *moderate adverse impact*. However once likely occupancy rates are allowed for this increase would drop to 1 to 2 dB, where the impact would drop to a *slight adverse* one.

6.3 DCLG Guidance Note, 2013 - 'Noise'

From the guidance published by the DCLG to support the NPPF it can be seen from the table of effects that;

Perception	Examples of Outcomes	Increasing Effect Level	Action
Noticeable and not intrusive	<i>Noise can be heard, but does not cause any change in behaviour or attitude. Can slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life.</i>	<i>No Observed Adverse Effect</i>	No specific measures required

From the evidence set out regarding absolute and relative sound levels it can be seen that any increase in sound level for the residents will fall into No Observable Effect Level and therefore there is no requirement over and above controlling the hours of use (up to 9pm for the western seating area and up to 11pm for the southern) for further mitigation.

Drawing No. 17.097.211-E

