Acoustic Consultancy Partnership Ltd
Ground Floor, Building 1000, Lakeside North Harbour
Western Road, Portsmouth, Hampshire, P06 3EZ
Tel: 023 9270 4133 | Fax: 023 9270 4001 | info@acpltd.org.uk

Acoustic Consultancy Report

Environmental Noise Survey Results and Noise Impact Assessment for Fixed Plant

Restaurant, 75 Southampton Row

Client:	T Bello Group PLC
Project:	Restaurant 75 Southampton Row London WC1B 4AR
Our Ref:	11132
Revision:	G
Report Prepared By	N. Fowler M.I.O.A.
Date:	13th July 2018

1.0 Introduction

1.1 Acoustic Consultancy Partnership Ltd were appointed by T Bello Group PLC to undertake an environmental noise survey and carry out a noise impact assessment for the new fixed plant at the proposed restaurant at 75 Southampton Row, London.

1.2 This report provides the results of our environmental noise survey and establishes the resultant plant noise levels for the proposed plant in accordance with the requirements of the London Borough of Camden for noise levels from new plant and machinery.

1.3 The predicted plant noise levels for the proposed plant have been established based on the latest plant selections and noise data provided to us. A plant noise assessment has been included within this report detailing the resultant noise levels at the nearest affected noise sensitive properties, which for this site are the residential located above but set back from the rear elevation of the premises and the residential to the rear that front onto Bedford Place.

1.4 There is a building with an elevation that faces the side of the end elevation of the premises but this has been confirmed as commercial on all floors.

1.5 In accordance with the London Borough of Camden requirements, the target noise levels determined within this report have been used to complete a plant noise assessment, taking into account the operational period of the plant items and their location in relation to the nearest noise sensitive facades.

2.0 Environmental Noise Survey Measurement Procedure

2.1 The environmental noise survey adopted the procedure and methodology stated within BS4142:2014. This report has been prepared to provide the Local Planning Authority with existing ambient and background noise levels covering the periods of operation of the proposed plant at the rear of the premises.

3.0 Site Description and Nearest Noise Sensitive Buildings

3.1 The ground floor premises have been occupied by an existing restaurant. There are five floors of residential above the premises.

3.2 At the rear, the ground floor of the premises protrudes beyond the rear face of the five storey residential. The rear wall of the premises faces the rear façade of the residential fronting onto Bedford Place. There is an adjacent two storey rear extension to No 73 Southampton Row which was identified as being commercial.

3.3 The proposed plant would be as follows:

a) The 2no proposed condensers, reference CU1 and CU2 serving the kitchen and restaurant, and the 2no proposed condensers reference CR1 and CR2 serving the freezer and chiller cold rooms, will be installed on the rear wall of the ground floor building.

b) The new kitchen extract fan (EF1) would be located internal to the building with an extract louvre in the rear wall of the round floor building.

c) The main kitchen canopy supply fan (SF1) and the general extract fan serving the toilets and general areas (EF2) would both be mounted internally with external wall mounted louvred openings on the rear wall of the ground floor building.

3.4 Full details of the individual plant items and operating periods are given in section 6.0.

4.0 Receptor Positions

4.1 From our site visit we have been able to establish the two nearest existing noise sensitive receptors that form the basis of our report.

Receptor RPA

Five storey residential flats above the proposed restaurant but set back from the rear of the ground floor building so that there will be no line of sight to any new plant items or the louvred openings serving the supply and extract fans. The flats at first floor level will be nearest to the proposed plant at a distance of 7m.

Receptor RPB

The rear façades of the residential fronting onto Bedford Place. The properties would have line of sight to the condensers and the louvred openings in the rear wall of the premises at a distance of 38m.

5.0 Plant Information

5.1 The plant models and noise data are given below.

Unit No	Plant Item	Sound Pressure Level, dB at 1m							
		63	125	250	500	1k	2k	4k	8k
CU1	CU1- Mitsubishi PUHZ-ZRP140YKA	59	57	55	49	46	42	36	29
CU2	CU2-Mitsubishi PUHZ-ZRP140YKA	59	57	55	49	46	42	36	29

Table 1 – Plant Sound Pressure Levels at 1m

Unit No	Plant Item	Sound Pressure Level, dBA at 10m
CR1	Freezer RoomCondenser-DCU4-3L	41
CR2	Chiller Room Condenser-DCU2-1H	38

Table 2 – Plant Sound Pressure Levels at 10m

Note: The above noise levels for units CU1, CU2, CR1 and CR2 are measured in free field conditions over a reflecting plane. The noise data for units CR1 and CR2 are based on the low noise option units.

Unit No	Plant Item	Sound Power Level, dB							
		63	125	250	500	1k	2k	4k	8k
EF1	Kitchen extract-Elta SCPP500/4/3	77	77	83	80	80	78	74	68
SF1	Kitchen supply-Elta SCPP450/4/3	71	72	81	78	74	70	64	58
EF2	General extract-Elta SJ250A	65	66	68	70	66	65	61	57

Table 3 – Plant Sound Power Levels

6.0 Plant Operating Periods

6.1 We have been advised the proposed operating hours of the restaurant will be between the hours of 07.00-midnight on Mondays to Thursdays, from 07.00 to 01.00 hours on Fridays and Saturdays and from 09.00 to midnight on Sundays and Bank Holidays.

6.2 We have allowed for the HVAC plant to operate for the proposed trading hours. The refrigeration plant, items CR1 and CR2 serving the coldrooms, will operate 24 hours a day, 7 days a week upon demand.

7.0 Environmental Noise Survey Monitoring Position

7.1 The monitoring position was on the flat roof at the rear of the premises at 1m from the rear elevation and centrally between the side elevations. Unmanned monitoring was carried out during a weekday evening, night and morning.

7.2 The microphone was greater than 3.5m from any vertical reflecting surface and the monitoring position is confirmed on the site plan in Appendix 2.

8.0 Monitoring Equipment

8.1 The noise monitoring equipment comprised of a Svantek 957 type 1 real time analyser, serial number 21434, within a microphone protection system. The microphone was mounted on a tripod and a weatherproof windshield and bird spike were used.

8.2 The meter calibration was verified before and after the measurement period by a Svantek SV31 acoustic calibrator, serial number 24687. Any deviation was within an acceptable tolerance.

8.3 The meter and calibrator have current calibration certificates available upon request.

9.0 Noise Monitoring Period and Survey Weather Conditions

9.1 The survey was carried out between 18.00 hours on Thursday 19th April 2018 and 11.00 hours on Friday 20th April 2018.

9.2 The weather was dry and still with partial cloud cover at times. The temperature was 26°C.

9.3 The weather was acceptable for environmental noise monitoring.

10.0 Noise Measurement Parameters

10.1 The survey established the prevailing L_{AFmax}, $L_{Aeq,T}$, $L_{A10,T}$, and $L_{A90,T}$ noise levels, measured using F time weighting, with a 15 minute reference time period.

11.0 Monitoring Observations and Results

11.1 We consider the survey results to be representative of the typical background and ambient noise levels affecting the residential properties facing towards the rear ground floor area of the proposed restaurant.

11.2 The dominant noise sources were traffic movement from the surrounding area.

11.3 The results of the survey are confirmed in Appendix 1.

12.0 Local Authority Criteria for Fixed Plant

12.1 The London Borough of Camden standard noise requirement is specified in the Camden Local Plan, adopted version dated July 2017. Camden Policy A4: Noise and Vibration makes reference to the Noise and Vibration Thresholds provided in Appendix 3.

12.2 Appendix 3 identifies the following thresholds for noise and vibration in terms of the "effect" levels described in the National Planning Policy Framework and Planning Practice Guidance.

NOEL – No Observed Effect Level
LOAL – Lowest Observed Adverse Effect Level
SOAEL – Significant Observed Adverse Effect Level

12.3 The Industrial and Commercial Noise Sources section detailed in Appendix 3 state:

"A relevant standard or guidance document should be referenced when determining values for LOAEL and SOAEL for non-anonymous noise. Where appropriate and within the scope of the document it is expected that British Standard 4142:2014 "Methods for rating and assessing industrial and commercial sound (BS4142) will be used. For such cases a Rating Level of 10dB below background (15dB if tonal components are present) should be considered as the design criterion.

Table C: Noise levels applicable to proposed industrial and commercial developments (including plant and machinery)

Existing Noise Sensitive Receptor	Assessment Location	Design Period	LOAEL (Green)	LOAEL to SOAEL (Amber)	SOAL (Red)
Dwellings	Outside dining or bedroom window (façade)	Day	Rating level 10dB below background	Rating level between 9dB below and 5dB above background	Rating level greater than 5dB above background
	Outside bedroom window (façade)	Night	Rating level 10dB below background and no events exceeding 57dBL_{Amax}	Rating level between 9dB below and 5dB above background or noise events between 57dB and 88dBL_{Amax}	Rating level greater than 5dB above background and/or events exceeding 88dBL_{Amax}

12.4 This type of modern air conditioning plant would not have a distinguishable discrete continuous note audible at the receptor positions.

12.5 Based on the requirements of Table C, and the results of our environmental noise survey given in Appendix 1, the cumulative plant noise criteria to be achieved at the façades of both receptor positions would be:

Cumulative Plant Noise Criteria for Plant Operation up to 01.00 Hours **35 dB $L_{Aeq,T}$**
Cumulative Plant Noise Criteria for Continuous Plant Operation **32 dB $L_{Aeq,T}$**

13.0 Predicted Plant Noise Levels

13.1 The predicted **un-attenuated** cumulative free field plant noise levels are given below.

Receptor Position	Plant Operating Period	Predicted Total Plant Noise Level $L_{Aeq(15min)}$ dB	Target Plant Noise Level $L_{Aeq(15min)}$ dB
RPA	Up to 01.00	52	35
	Continuous	34	32
RPB	Up to 01.00	52	35
	Continuous	34	32

Table 4 – Cumulative Plant Noise Levels at Receptor Positions

14.0 Mitigation

14.1 It can be seen from the table above, the predicted un-attenuated cumulative plant noise levels will exceed the London Borough of Camden target criteria of 10 dBA below the lowest measured L_{A90T} for all operating periods of the plant, at the facades of both receptor positions.

14.2 To achieve the London Borough of Camden criteria it will be necessary to provide mitigation measures.

14.3 The proposed mitigation measures are as detailed below:

a) In duct attenuators on the atmosphere side of the kitchen supply and both extract fans. The minimum attenuation performances figures are detailed below:

Plant	Minimum Required Insertion Loss, dB							
	63	125	250	500	1k	2k	4k	8k
EF1 Kitchen extract discharge	7	17	28	44	41	29	18	13
SF1 Kitchen supply intake	6	11	26	39	37	28	22	13
EF2 General extract discharge	4	6	14	27	26	24	20	12

Table 5– Fans Minimum Attenuator Insertion Loss Requirements

b) The chiller and freezer coldroom units (CR1 and CR2) are positioned at high level on the wall of the rear elevation and it is our recommendation that acoustic wall lining should be located on the rear wall behind these two units only to minimise reflected noise travelling to receptor position RPB.

The wall behind these units is to be lined with 100mm thick acoustic wall lining panels constructed from 100mm thick 45kg/m^3 rockwall slab infill material with fibreglass tissue facing retained by 0.8mm thick 35% free area expanded metal. The top of the lining should terminate level with the top of the highest unit and should be the width of both units.

The infill is to be inert, non-hygroscopic, rot proof, vermin proof and have Class 1 rating for spread of flame. It is to be bagged with “Melinex sheet” and all joints sealed to prevent water ingress to the rockwall slabs.

The panel minimum coefficient of absorption is to be as detailed below

63	125	250	500	1k	2k	4k	8k Hz
0.17	0.54	1.0	1.0	1.0	1.0	1.0	0.84

14.4 The predicted **attenuated** cumulative free field plant noise levels allowing for the duct attenuation and the wall lining are given below and the calculations shown in Appendix 3.

Receptor Position	Plant Operating Period	Predicted Total Plant Noise Level $L_{Aeq(15min)}$ dB	Target Plant Noise Level $L_{Aeq(15min)}$ dB
RPA	Up to 01.00	34	35
	Continuous	31	32
RPB	Up to 01.00	34	35
	Continuous	31	32

Table 6 – Cumulative Plant Noise Levels at Receptor Positions

15.0 Vibration Isolation

15.1 All plant items are to be suitably vibration isolated using proprietary mountings or hangers depending on the fixing method to be adopted. The mounting systems are to provide a static deflection suitable to achieve a minimum 98% isolation efficiency.

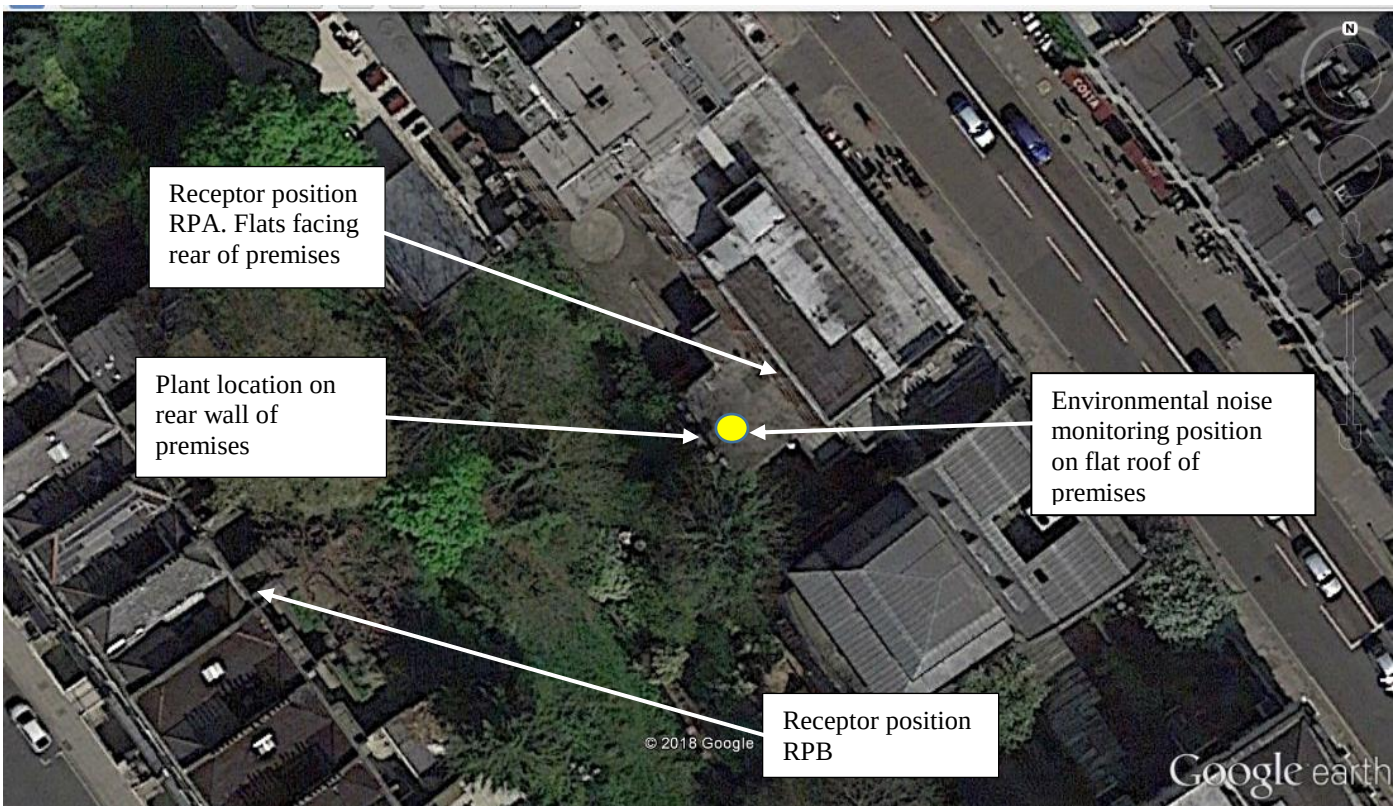
16.0 Conclusions

16.1 Providing the mitigation measures detailed in section 14.3 a) and b) are implemented in full, the London Borough of Camden external criteria, detailed in section 12.5, will be achieved at both receptor positions.

Appendix 1 – Results

Date	Time			Measured Sound Pressure Level, dB			
				LAFmax	LAeq,T	LA10,T	LA90,T
Thursday 19.04.2018	18:00	to	18:15	64.9	53.8	54.9	52.4
	18:15	to	18:30	65.4	53.9	55.3	52.3
	18:30	to	18:45	67.3	53.2	54.4	51.6
	18:45	to	19:00	66.2	53.6	54.6	52.1
	19:00	to	19:15	60.6	53.5	54.9	52.1
	19:15	to	19:30	65.7	53.3	54.6	51.7
	19:30	to	19:45	66.3	53.7	54.4	51.4
	19:45	to	20:00	66.4	53.2	54.4	51.4
	20:00	to	20:15	74.9	56.6	55.2	51.4
	20:15	to	20:30	70.9	54.1	53.9	51.0
	20:30	to	20:45	70.2	53.1	53.5	49.6
	20:45	to	21:00	66.4	53.0	53.8	51.2
	21:00	to	21:15	64.8	53.0	53.9	51.1
	21:15	to	21:30	67.0	54.6	56.2	51.0
	21:30	to	21:45	69.1	53.7	53.7	50.8
	21:45	to	22:00	72.0	54.0	53.9	51.0
	22:00	to	22:15	68.3	53.5	54.2	51.0
	22:15	to	22:30	65.7	52.8	53.9	51.0
	22:30	to	22:45	68.3	52.3	53.0	50.4
	22:45	to	23:00	69.1	56.6	60.3	51.0
	23:00	to	23:15	64.5	52.2	53.0	50.1
	23:15	to	23:30	59.8	50.2	51.6	48.3
	23:30	to	23:45	59.9	48.4	50.5	45.3
	23:45	to	00:00	63.9	50.9	51.9	49.0
Friday 20.04.2018	00:00	to	00:15	62.2	51.1	52.5	48.9
	00:15	to	00:30	54.9	49.9	51.1	48.4
	00:30	to	00:45	60.2	50.2	51.5	48.4
	00:45	to	01:00	61.1	50.2	51.3	48.5
	01:00	to	01:15	59.8	49.9	51.3	48.3
	01:15	to	01:30	56.1	49.8	51.2	48.2
	01:30	to	01:45	57.4	49.7	50.9	48.1
	01:45	to	02:00	62.0	49.7	50.8	48.1
	02:00	to	02:15	65.8	49.7	50.9	48.1
	02:15	to	02:30	73.3	52.7	50.9	44.9
	02:30	to	02:45	54.9	46.8	49.7	42.4
	02:45	to	03:00	68.4	51.5	52.5	48.6
	03:00	to	03:15	67.8	53.2	54.6	48.4
	03:15	to	03:30	60.5	50.5	52.2	48.3
	03:30	to	03:45	68.7	51.7	52.2	48.3
	03:45	to	04:00	63.4	50.6	51.9	48.0
	04:00	to	04:15	54.5	49.4	50.9	47.9
	04:15	to	04:30	56.4	49.8	51.5	48.0
	04:30	to	04:45	59.8	51.1	53.8	48.1
	04:45	to	05:00	59.7	52.7	55.7	49.0
	05:00	to	05:15	62.6	52.8	55.5	49.1
	05:15	to	05:30	64.9	53.0	56.0	47.5
	05:30	to	05:45	60.0	50.9	53.8	45.7
	05:45	to	06:00	66.0	52.4	54.3	49.3
	06:00	to	06:15	64.6	52.2	54.2	49.4
	06:15	to	06:30	61.5	52.3	54.3	49.9
	06:30	to	06:45	65.2	52.7	54.6	50.1
	06:45	to	07:00	69.5	52.7	53.9	50.0
	07:00	to	07:15	70.6	53.3	55.1	50.2
	07:15	to	07:30	67.7	52.6	54.2	50.3
	07:30	to	07:45	67.1	52.8	54.4	50.3
	07:45	to	08:00	63.0	53.0	54.8	50.5
	08:00	to	08:15	65.6	53.3	54.2	50.5
	08:15	to	08:30	66.5	52.6	54.0	49.9
	08:30	to	08:45	76.2	52.9	53.6	49.1
	08:45	to	09:00	62.7	52.5	53.8	51.0
	09:00	to	09:15	61.0	53.3	55.3	51.1
	09:15	to	09:30	69.9	52.7	54.1	50.8
	09:30	to	09:45	71.6	54.4	55.0	50.8
	09:45	to	10:00	62.7	52.1	53.3	50.6
	10:00	to	10:15	66.0	53.2	54.3	51.0
	10:15	to	10:30	63.8	52.7	54.0	50.9
	10:30	to	10:45	67.0	53.2	54.9	51.0
	10:45	to	11:00	74.5	55.4	55.0	51.0

Appendix 2 – Site Plan



Appendix 3 – Plant Noise Level Calculations
(Plant Operating up to 01.00 hours)

Plant Calcs for Octave Band Sound Pressure Level

Project: Taco Bell - 75 Southampton Row - Plant running up to 01.00 hours

Date: 29.06.2018

Section Total, dBA	**Day**	**29.4**	**Nigh**	**-113.0**	
ALL PLANT TOTAL	**Day**	**34.1**	**Nigh**	**-99.5**	

RPA

CU1										Day "y"	Night "y"
Lp at 1m, Q=2		59	57	55	49	46	42	36	29		
A weight		-26	-16	-8.6	-3.2		1.2	1	-1.1		
Directivity Q=	4	3	3	3	3	3	3	3	3		
Barrier (enter as +ve)	d	8	9	10	12	15	15	15	15		
Distance correction m	7	-16.9	-16.9	-16.9	-16.9	-16.9	-16.9	-16.9	-16.9	y	
Other Correction (+ve or -ve)											
Other Correction (+ve or -ve)											
Resultant dBA		11	18	23	20	17	14	8	-1		
Overall dBA		26.4									
438.2794254		12.4	63.4	179	98.1	51.5	27	6.48	0.8	438.3	
										RPA	

CU2										Day	Night
Lp at 1m, Q=2		59	57	55	49	46	42	36	29		
A weight		-26	-16	-8.6	-3.2		1.2	1	-1.1		
Directivity Q=	4	3	3	3	3	3	3	3	3		
Barrier (enter as +ve)	d	8	9	10	12	15	15	15	15		
Distance correction m	7	-16.9	-16.9	-16.9	-16.9	-16.9	-16.9	-16.9	-16.9	y	
Other Correction (+ve or -ve)											
Other Correction (+ve or -ve)											
Resultant dBA		11	18	23	20	17	14	8	-1		
Overall dBA		26.4									
438.2794254		12.4	63.4	179	98.1	51.5	27	6.48	0.8	438.3	
										RPA	

barrier values

a								
b	5	5	5	5	5	5	5	5
c	7	7	8	8	9	9	10	10
d	8	9	10	12	15	15	15	15

Section Total, dBA	**Day**	**26.5**	**Nigh**	**-113.0**	
ALL PLANT TOTAL	**Day**	**33.5**	**Nigh**	**-99.5**	

RPB

CU1										Day "y"	Night "y"
Lp at 1m, Q=2		59	57	55	49	46	42	36	29		
A weight		-26	-16	-8.6	-3.2		1.2	1	-1.1		
Directivity Q=	4	3	3	3	3	3	3	3	3		
Barrier (enter as +ve)	a										
Distance correction m	38	-31.6	-31.6	-31.6	-31.6	-31.6	-31.6	-31.6	-31.6	y	
Other Correction (+ve or -ve)											
Other Correction (+ve or -ve)											
Resultant dBA		4	12	18	17	17	15	8	-1		
Overall dBA		23.5									
225.2021901		2.65	17.1	60.6	52.8	55.3	29	6.96	0.86	225.2	
										RPB	

CU2										Day	Night
Lp at 1m, Q=2		59	57	55	49	46	42	36	29		
A weight		-26	-16	-8.6	-3.2		1.2	1	-1.1		
Directivity Q=	4	3	3	3	3	3	3	3	3		
Barrier (enter as +ve)	a										
Distance correction m	38	-31.6	-31.6	-31.6	-31.6	-31.6	-31.6	-31.6	-31.6	y	
Other Correction (+ve or -ve)											
Other Correction (+ve or -ve)											
Resultant dBA		4	12	18	17	17	15	8	-1		
Overall dBA		23.5									
225.2021901		2.65	17.1	60.6	52.8	55.3	29	6.96	0.86	225.2	
										RPB	

Plant Calcs for Broadband Sound Pressure Level

Project: Taco Bell - 75 Southampton Row - Plant running up to 01.00 hours

Date: 29.06.2018

Section Total, dBA	**Day**	**30.9**	**Night**	**-100.0**	
ALL PLANT TOTAL	**Day**	**34.1**	**Night**	**-99.5**	

RPA

	Item	Lp, Q=2	Data Distance	Assessment Distance		Barrier Attenuation (enter +ve)	Directivity Q=		Night Reduction (enter +ve)	Other Correction (+ve or -ve)	Resultant Day dBA	Day "y"	Night "y"		
CR1		41	10	7	3.098	15	2	0			29.1	y		###	
CR2		38	10	7	3.098	15	2	0			26.1	y		###	

	Section Total, dBA	Day	31.2	Night	-100.0
	ALL PLANT TOTAL	**Day**	**33.5**	**Night**	**-99.5**

RPB

	Item	Lp, Q=2	Data Distance	Assessment Distance		Barrier Attenuation (enter +ve)	Directivity Q=		Night Reduction (enter +ve)	Other Correction (+ve or -ve)	Resultant Day dBA	Day "y"	Night "y"		
1	CR1	41	10	38	-11.6		2	0			29.4	y		###	
2	CR2	38	10	38	-11.6		2	0			26.4	y		###	

ACP

Fan Calcs for In duct Sound Power Levels

Project: Taco Bell - 75 Southampton Row - Plant running up to 01.00 hours
Date: 29.06.2018

barrier values								
a								
b	5	5	5	5	5	5	5	5
c	7	7	8	8	9	9	10	10
d	8	9	10	12	15	15	15	15

Section Total, dBA (RPA)	**Day**	**26.9**	**Night**	**-115.5**
ALL PLANT TOTAL (RPA)	**Day**	**34.1**	**Night**	**-99.5**
Section Total, dBA (RPB)	**Day**	**26.7**	**Night**	**-115.5**
ALL PLANT TOTAL (RPB)	**Day**	**33.5**	**Night**	**-99.5**

RPA

EF1 - Kitchen Extract										Day "y"	Night "y"
Induct Lw		77	77	83	80	80	78	74	68		
End reflection loss (enter +ve)		9	5	1							
Directivity (enter +ve)		4	5	6	7	8	9	9	9		
Distance correction	7	-27.9	-27.9	-27.9	-27.9	-27.9	-27.9	-27.9	-27.9		
Barrier attenuation	d	8	9	10	12	15	15	15	15		
Other correction (enter + or -)										y	
Other correction (enter + or -)											
A weighting		-26.2	-16.1	-8.6	-3.2		1.2	1	-1.1		
Attenuation IL (enter +ve)		7	17	28	44	41	29	18	13		
Resultant dBA		2.9	7.0	13.5	-0.1	4.1	16.3	23.1	20.0		
Overall dBA		25.8									
380.2484011		1.95	5.02	22.4	0.98	2.57	42.7	204	100	380	
										RPA	
SF1 - Kitchen Supply										**Day**	**Night**
Induct Lw		71	72	81	78	74	70	64	58		
End reflection loss (enter +ve)		9	5	1							
Directivity (enter +ve)		4	5	6	7	8	9	9	9		
Distance correction	7	-27.9	-27.9	-27.9	-27.9	-27.9	-27.9	-27.9	-27.9		
Barrier attenuation	d	8	9	10	12	15	15	15	15		
Other correction (enter + or -)										y	
Other correction (enter + or -)											
A weighting		-26.2	-16.1	-8.6	-3.2		1.2	1	-1.1		
Attenuation IL (enter +ve)		6	11	26	39	37	28	22	13		
Resultant dBA		-2.1	8.0	13.5	2.9	2.1	9.3	9.1	10.0		
Overall dBA		17.8									
59.60624788		0.62	6.32	22.4	1.95	1.62	8.52	8.14	10	59.6	
										RPA	
EF2 - General Extract										**Day**	**Night**
Induct Lw		65	66	68	70	66	65	61	57		
End reflection loss (enter +ve)		9	5	1							
Directivity (enter +ve)		4	5	6	7	8	9	9	9		
Distance correction	7	-27.9	-27.9	-27.9	-27.9	-27.9	-27.9	-27.9	-27.9		
Barrier attenuation	d	8	9	10	12	15	15	15	15		
Other correction (enter + or -)										y	
Other correction (enter + or -)											
A weighting		-26.2	-16.1	-8.6	-3.2		1.2	1	-1.1		
Attenuation IL (enter +ve)		4	6	14	27	26	24	20	12		
Resultant dBA		-6.1	7.0	12.5	6.9	5.1	8.3	8.1	10.0		
Overall dBA		17.4									
54.46573088		0.25	5.02	17.8	4.9	3.24	6.77	6.47	10	54.5	
										RPA	

RPB

	EF1 - Kitchen Extract										Day "y"	Night "y"
1	Induct Lw		77	77	83	80	80	78	74	68		
	End reflection loss (enter +ve)		9	5	1							
	Directivity (enter +ve)		4	5	6	7	8	9	9	9		
	Distance correction	38	-42.6	-42.6	-42.6	-42.6	-42.6	-42.6	-42.6	-42.6		
	Barrier attenuation	a										
	Other correction (enter + or -)										y	
	Other correction (enter + or -)											
	A weighting		-26.2	-16.1	-8.6	-3.2		1.2	1	-1.1		
	Attenuation IL (enter +ve)		7	17	28	44	41	29	18	13		
	Resultant dBA		-3.8	1.3	8.8	-2.8	4.4	16.6	23.4	20.3		
	Overall dBA		25.9									
	385.3514769		0.42	1.35	7.61	0.53	2.76	45.8	219	107	385	
											RPB	
	SF1 - Kitchen Supply										**Day**	**Night**
2	Induct Lw		71	72	81	78	74	70	64	58		
	End reflection loss (enter +ve)		9	5	1							
	Directivity (enter +ve)		4	5	6	7	8	9	9	9		
	Distance correction	38	-42.6	-42.6	-42.6	-42.6	-42.6	-42.6	-42.6	-42.6		
	Barrier attenuation	a										
	Other correction (enter + or -)										y	
	Other correction (enter + or -)											
	A weighting		-26.2	-16.1	-8.6	-3.2		1.2	1	-1.1		
	Attenuation IL (enter +ve)		6	11	26	39	37	28	22	13		
	Resultant dBA		-8.8	2.3	8.8	0.2	2.4	9.6	9.4	10.3		
	Overall dBA		16.1									
	40.86064507		0.13	1.7	7.61	1.05	1.74	9.15	8.73	10.7	40.9	
											RPB	
	EF2 - General Extract										**Day**	**Night**
3	Induct Lw		65	66	68	70	66	65	61	57		
	End reflection loss (enter +ve)		9	5	1							
	Directivity (enter +ve)		4	5	6	7	8	9	9	9		
	Distance correction	38	-42.6	-42.6	-42.6	-42.6	-42.6	-42.6	-42.6	-42.6		
	Barrier attenuation	a										
	Other correction (enter + or -)										y	
	Other correction (enter + or -)											
	A weighting		-26.2	-16.1	-8.6	-3.2		1.2	1	-1.1		
	Attenuation IL (enter +ve)		4	6	14	27	26	24	20	12		
	Resultant dBA		-12.8	1.3	7.8	4.2	5.4	8.6	8.4	10.3		
	Overall dBA		15.9									
	38.51086213		0.05	1.35	6.04	2.64	3.48	7.26	6.94	10.7	38.5	
											RPB	

Appendix 3 – Plant Noise Level Calculations
(Plant Operating Continuously)

Plant Calcs for Broadband Sound Pressure Level

Project: Taco Bell - 75 Southampton Row - Continuous operation
Date: 29.06.2018

Section Total, dBA	Day	-100.0	Night	30.9
ALL PLANT TOTAL	Day	-99.5	Night	30.9

RPA

Item	lp, Q=2	Data Distance	Assessment Distance		Barrier Attenuation (enter +ve)	Directivity Q=		Night Reduction (enter +ve)	Other Correction (+ve or -ve)	Resultant Day dBA	Day "y"	Night "y"			
CR1	41	10	7	3.098	15	2	0			29.1		y			1
CR2	38	10	7	3.098	15	2	0			26.1		y			2

Plant Calcs for Broadband Sound Pressure Level

Section Total, dBA	Day	-100.0	Night	31.2
ALL PLANT TOTAL	Day	-99.5	Night	31.2

RPB

Item	lp, Q=2	Data Distance	Assessment Distance		Barrier Attenuation (enter +ve)	Directivity Q=		Night Reduction (enter +ve)	Other Correction (+ve or -ve)	Resultant Day dBA	Day "y"	Night "y"		
CR1	41	10	38	-11.6		2	0			29.4		y		
CR2	38	10	38	-11.6		2	0			26.4		y		