

Hanslink Ltd

**Library Parade
Crockhamwell Road
Woodley RG5 3LX**

**Noise Assessment
Report for Condition
12 of Approval
230743, Wokingham
Borough Council**

October 2024

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Prepared and Authorised by	John Hyde	John Hyde	John Hyde	
Signature				
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1. INTRODUCTION

At the request of Hardeep Hans of Hanslink Ltd and as instructed by Paul Butt Planning Ltd, a noise impact assessment has been carried out for the approved development at Library Parade, Crockhamwell Road, Woodley RG5 3LX. This is required for the discharge of Planning Condition 12 relating to noise from fixed plant and machinery and meeting the requirements of BS4142:2014.

It is understood that existing air conditioning plant on the rear façade of the building will be removed as part of the development. Future plant is to be located at roof level. This report is an update to the March 2024 report following minor revisions to the plans which have not affected the assessment.

The measurements and assessment have been carried out by John Hyde, a Chartered Physicist and Member of the Institute of Acoustics who has over 35 years' experience as a noise and acoustics consultant.

Planning Condition 12 states:

Noise – No development shall take place until a full Noise Impact Assessment to BS 4142 2014 has been submitted to and approved in writing by the local planning authority. The assessment shall cover the current acoustic environment and how predicted noise from the development, including all proposed plant and machinery and vehicle delivery options will affect nearby noise sensitive receptors, including the occupiers of the proposed development and any mitigation measures necessary. Development shall not commence until the measures approved in the report have been implemented.

2. ASSESSMENT METHODOLOGY

British Standard 4142:2014 describes methods for rating and assessing industrial and/or commercial sounds, to assess the likely effects on people who might be inside or outside a dwelling or premises used for residential purposes upon which sound is incident.

The sound from the source is rated by taking into account the sound level of the source, known as the specific sound level, and its characteristics, such as the tonal, impulsive or intermittency nature of the source, and applying an appropriate correction to give the rating level. To gain an initial estimate of the potential impact of the sound source, it is compared to the background noise level, and the level by which the rating level exceeds the background noise level indicates the following potential impacts:

Difference	Assessment
Around 10 dB or more	Likely to be an indication of a significant adverse impact, depending on the context
Around 5 dB	Likely to be an indication of an adverse

0 dB or less	impact, depending on the context An indication of the specific sound source having a low impact depending on the context
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The standard states that "where an initial estimate of the impact needs to be modified due to the context, take all pertinent factors into consideration, including the following:

- The absolute level of the sound
- The character and level of the residual sound compared to the character and level of the specific sound
- The sensitivity of the receptor and whether dwellings or other premises for residential purposes will include design measures that secure good internal or external acoustic conditions, such as:
 - Façade insulation treatment
 - Ventilation measures that reduce the need to have windows open
 - Acoustic screening"

3 BACKGROUND NOISE MEASUREMENTS

Background noise levels were measured from 19th to 21st February 2024 at first floor level on the rear façade of the building as this would be representative of the position of the nearest noise sensitive receptor to the revised plant location. The position also assessed noise from the commercial use of the car park

The microphone was protected by an outdoor weatherproof system. Weather conditions were taken from hourly data at 'TimeAndDate.com' for the nearest weather station at Farnborough Airfield. Two periods of data were disregarded in the assessment due to high wind speed and heavy rain as indicated on the data in Appendix 1. Light wind and rain occurred during the measurements from time to time but this was within the parameters recommended in BS7445-1:1991 'Description and measurement of environmental noise'.

The noise measurements were carried out using the following equipment:

SVAN 955 Sound Level Meter	S/N 27330
Rion NC-74 Calibrator	S/N 34167512

The above equipment fulfils IEC 61672 Class 1 and is traceable to calibration under BS7580: Part 1:1997. The meters were calibrated before and after the measurement and no significant drifting of the calibration signal was observed.

Measurements were undertaken for a two-day period at 15-minute intervals and the following parameters were recorded:

- L_{Aeq} The equivalent continuous noise level over 15-minute period
 L_{Amax} The maximum noise level during each period
 L_{A90} The level exceeded for 90% of the time, the background level

Based on limited observation, there was little activity in the parking area other than car movements and occasional deliveries by small vans. This was confirmed by the low daytime average noise level at the rear façade, of $L_{Aeq,16hr}$ 54dB. Summary of results:

Daytime	$L_{Aeq,16hr}$ 54dB
Night time	$L_{Aeq,8hr}$ 46dB
Lowest daytime background	$L_{A90,15min}$ 40dB
Lowest night time background	$L_{A90,15min}$ 35dB

The detailed results are shown in Appendix 1.

4 PLANT NOISE

The plant required for future operation of the commercial activities is not known at this stage of the development programme. However, based on existing uses, it is anticipated that three condenser units would need to be installed in the plant area which will be located on the roof, as shown in Figures 1 and 2.

Figure 1: Location of plant area

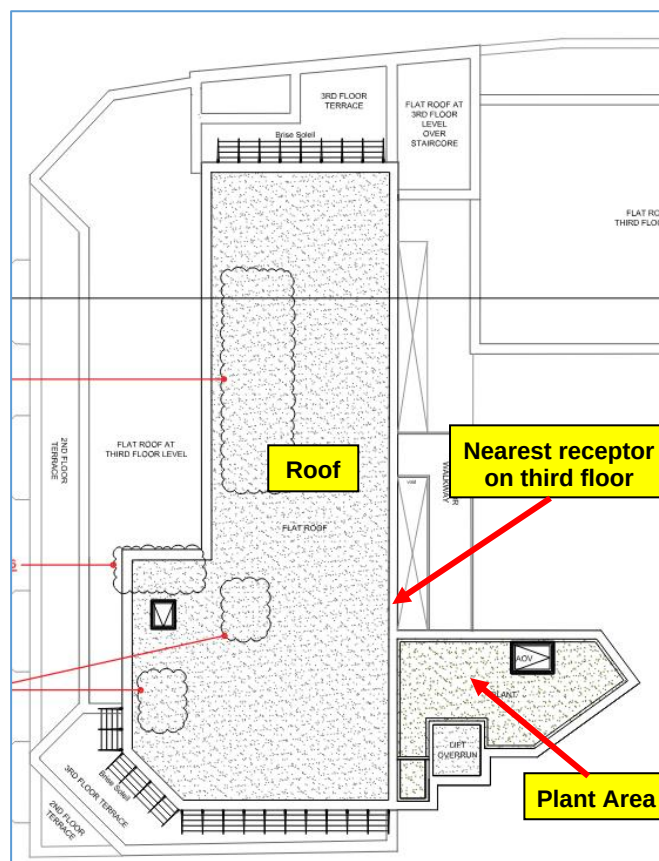
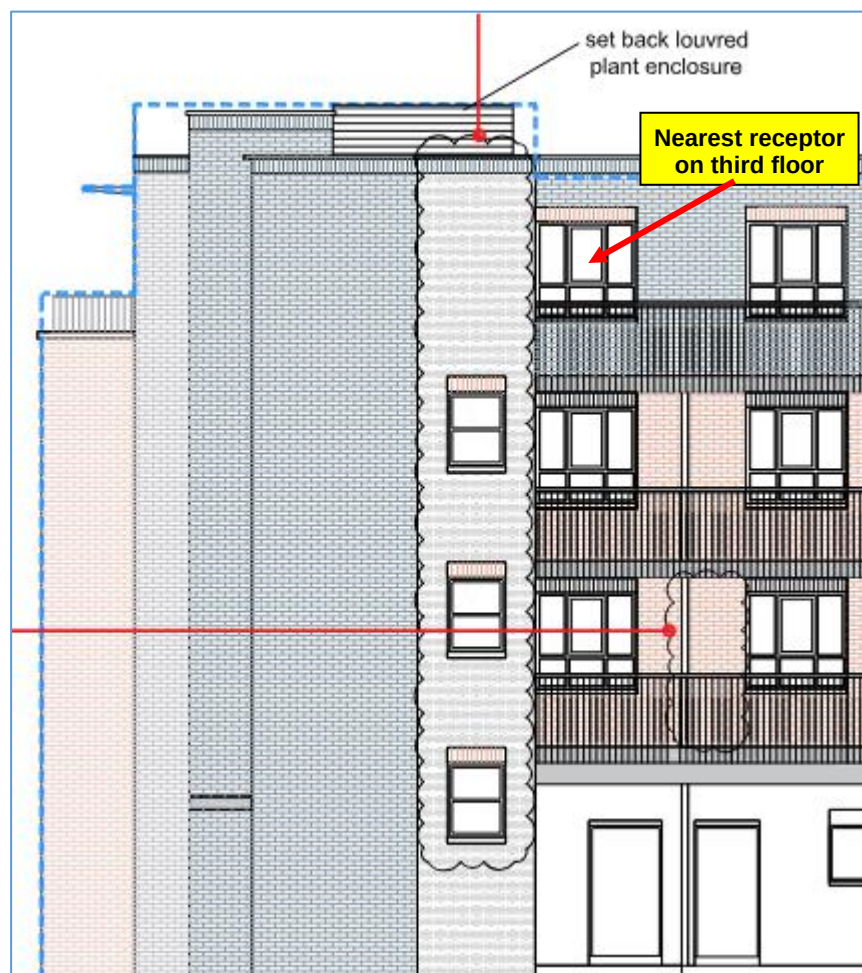


Figure 2: Elevation of plant area

Noise levels have been estimated at the nearest receptor, based on a typical commercial air conditioning unit with a noise emission sound power level of 64dB(A), such as the Mitsubishi SUZ-M50VA. Acoustic screening would be provided by the difference in floor level and by the plant area wall enclosure. The calculation is shown in Appendix 2. The sound pressure level would be 25dB(A) for a single unit and 30dB(A) for three units. An assessment to BS4142 has been carried out for the more sensitive night time period, as shown in Table 1.

Table 1: BS4142:2014 Noise Impact Assessment: Night time

Results		Clause of BS4142	Commentary
Residual Noise Level at the receptor position	$L_{Aeq,1hr} = 46dB$	7.3.2	Ambient noise level with specific sound not active. Assumption based on the measured levels
Background Sound Level	$L_{AF90,1hr} = 35dB$	8.1.2 and 8.3	Based on distribution of L_{A90} levels measured at receptor position

Results		Clause of BS4142	Commentary
Specific Sound Level	$L_{Aeq,1hr} = 30dB$	7.3.6	Highest 1 hour sound level of plant noise calculated from manufacturer's data and corrected for distance and screening at receptor position
Acoustic feature correction	0dB	9.2	Tonal characteristics not apparent in manufacturer's data.
Rating Level	$(30 + 0)dB = 30dB$	9.2	
Excess of rating level over background sound level	$(30 - 35)dB = -5dB$	11	
Assessment		11	The Noise Rating Level would be 5dB below the Background Sound Level, indicating a low impact at the nearest receptor.
Uncertainty of the measurement		11	The measurements of residual and background noise were taken over a two-day period and as such there is an element of uncertainty. The assessment of the specific noise level was based on manufacturer's measurements to an international standard, thus the uncertainty in the source noise level is considered to be low.

5 ASSESSMENT

The BS4142 assessment shows that three air conditioning units could be located within the proposed plant area and would result in a low adverse impact at the nearest receptor, on the assumption of a typical sound power emission level of 64dB(A).

This takes account of the acoustic mitigation measures incorporated into design of the building; the roof level location effectively screens the plant noise from the nearest receptors on the third floor. Further screening is provided by the wall enclosing the plant area.

If units of higher noise emission levels are to be installed, additional mitigation is likely to be needed. This should take the form of either individual acoustic enclosures to the units or additional louvred screening, designed to meet a cumulative noise level at the

nearest receptor position, of no more than 30dB(A), 5dB below the background level. This would meet the requirements of Planning Condition 12.

APPENDIX 1 – Noise Measurement Results

Data marked in **Yellow** has been excluded from the assessment due to the influence of adverse weather conditions, high windspeed/heavy rain.

Date & Time	L _{Amax} [dB]	L _{Aeq} [dB]	L _{A90} [dB]
19/02/2024 11:33	78.9	59.6	50.4
19/02/2024 11:48	80.6	59.2	49.4
19/02/2024 12:03	74.4	57.2	48.0
19/02/2024 12:18	75.0	55.1	47.4
19/02/2024 12:33	78.2	57.3	49.4
19/02/2024 12:48	80.5	56.3	48.8
19/02/2024 13:03	76.6	56.3	49.1
19/02/2024 13:18	81.4	57.6	47.6
19/02/2024 13:33	73.2	54.6	47.5
19/02/2024 13:48	81.1	53.8	47.1
19/02/2024 14:03	76.3	53.5	46.0
19/02/2024 14:18	76.8	55.3	46.2
19/02/2024 14:33	76.4	53.5	46.7
19/02/2024 14:48	77.6	55.4	46.3
19/02/2024 15:03	72.6	54.5	47.2
19/02/2024 15:18	73.5	54.5	46.6
19/02/2024 15:33	77.7	55.9	47.9
19/02/2024 15:48	76.9	54.6	47.1
19/02/2024 16:03	75.5	55.6	48.5
19/02/2024 16:18	74.3	52.8	47.0
19/02/2024 16:33	89.9	61.1	48.7
19/02/2024 16:48	72.6	55.4	47.6
19/02/2024 17:03	80.7	57.8	47.3
19/02/2024 17:18	82.1	55.5	46.3
19/02/2024 17:33	84.5	57.6	46.1
19/02/2024 17:48	73.8	52.5	45.5
19/02/2024 18:03	72.7	52.6	45.6
19/02/2024 18:18	70.8	52.1	45.1
19/02/2024 18:33	76.1	51.0	44.5
19/02/2024 18:48	66.2	49.9	44.2
19/02/2024 19:03	73.5	51.5	44.1
19/02/2024 19:18	79.8	52.3	44.2
19/02/2024 19:33	73.3	52.4	44.6
19/02/2024 19:48	74.2	49.0	42.6
19/02/2024 20:03	70.4	50.2	41.4
19/02/2024 20:18	65.8	48.1	43.1
19/02/2024 20:33	66.1	46.4	42.8
19/02/2024 20:48	65.0	47.3	42.3
19/02/2024 21:03	65.4	46.8	42.2
19/02/2024 21:18	62.4	44.6	41.4
19/02/2024 21:33	59.2	45.0	41.3
19/02/2024 21:48	76.5	51.0	41.9
19/02/2024 22:03	65.8	44.1	41.2

Date & Time	L _{Amax} [dB]	L _{Aeq} [dB]	L _{A90} [dB]
19/02/2024 22:18	69.1	44.3	41.2
19/02/2024 22:33	73.6	44.5	40.7
19/02/2024 22:48	67.5	44.5	39.0
19/02/2024 23:03	64.7	42.1	39.2
19/02/2024 23:18	55.9	41.0	38.9
19/02/2024 23:33	49.4	39.5	38.2
19/02/2024 23:48	64.5	41.3	36.1
20/02/2024 00:03	46.9	40.0	38.6
20/02/2024 00:18	51.0	37.7	34.9
20/02/2024 00:33	43.4	37.5	34.6
20/02/2024 00:48	52.8	40.1	38.0
20/02/2024 01:03	77.0	49.3	38.4
20/02/2024 01:18	49.5	39.4	37.9
20/02/2024 01:33	44.1	37.2	34.5
20/02/2024 01:48	49.5	39.1	38.1
20/02/2024 02:03	54.4	38.9	37.0
20/02/2024 02:18	48.2	37.5	34.5
20/02/2024 02:33	60.8	41.9	37.4
20/02/2024 02:48	61.5	42.4	35.2
20/02/2024 03:03	52.5	41.1	36.3
20/02/2024 03:18	67.4	46.7	38.0
20/02/2024 03:33	56.5	41.9	35.4
20/02/2024 03:48	62.3	44.1	39.0
20/02/2024 04:03	68.5	50.4	38.5
20/02/2024 04:18	56.8	42.1	39.0
20/02/2024 04:33	59.0	45.3	40.1
20/02/2024 04:48	64.5	47.5	43.7
20/02/2024 05:03	66.3	46.3	40.9
20/02/2024 05:18	73.8	52.1	40.4
20/02/2024 05:33	62.6	47.0	41.5
20/02/2024 05:48	62.9	43.7	41.1
20/02/2024 06:03	61.2	43.7	42.1
20/02/2024 06:18	67.1	45.6	42.1
20/02/2024 06:33	57.7	45.3	43.2
20/02/2024 06:48	58.7	46.1	43.3
20/02/2024 07:03	66.3	47.0	43.2
20/02/2024 07:18	60.1	47.7	45.0
20/02/2024 07:33	76.4	55.3	47.0
20/02/2024 07:48	85.1	55.2	46.7
20/02/2024 08:03	65.9	51.0	48.1
20/02/2024 08:18	77.1	53.4	48.3
20/02/2024 08:33	69.8	53.7	48.7
20/02/2024 08:48	77.1	53.7	48.4

Date & Time	L _{Amax} [dB]	L _{Aeq} [dB]	L _{A90} [dB]
20/02/2024 09:03	74.7	55.1	48.5
20/02/2024 09:18	73.3	55.7	47.6
20/02/2024 09:33	74.6	53.8	47.7
20/02/2024 09:48	71.3	52.9	46.6
20/02/2024 10:03	74.6	53.3	47.8
20/02/2024 10:18	71.8	53.9	48.5
20/02/2024 10:33	81.1	54.1	47.9
20/02/2024 10:48	72.5	55.2	49.2
20/02/2024 11:03	75.3	54.5	49.3
20/02/2024 11:18	81.5	56.5	49.0
20/02/2024 11:33	74.7	56.4	48.6
20/02/2024 11:48	81.5	57.2	49.2
20/02/2024 12:03	78.0	57.8	49.4
20/02/2024 12:18	73.5	56.4	50.1
20/02/2024 12:33	75.5	57.7	50.0
20/02/2024 12:48	74.6	55.8	49.7
20/02/2024 13:03	72.0	54.7	48.8
20/02/2024 13:18	76.0	57.0	48.3
20/02/2024 13:33	92.9	58.7	47.1
20/02/2024 13:48	81.9	55.1	48.0
20/02/2024 14:03	78.6	54.0	46.9
20/02/2024 14:18	76.1	54.1	46.9
20/02/2024 14:33	74.1	55.5	47.4
20/02/2024 14:48	79.4	54.0	47.9
20/02/2024 15:03	77.5	54.9	48.1
20/02/2024 15:18	79.6	55.6	48.3
20/02/2024 15:33	79.5	55.4	49.4
20/02/2024 15:48	79.2	55.8	48.4
20/02/2024 16:03	80.6	57.9	48.6
20/02/2024 16:18	86.3	58.1	49.0
20/02/2024 16:33	73.6	55.2	48.9
20/02/2024 16:48	76.8	54.5	48.0
20/02/2024 17:03	78.8	55.1	47.7
20/02/2024 17:18	74.7	55.0	47.5
20/02/2024 17:33	74.9	55.5	47.2
20/02/2024 17:48	74.4	57.3	48.8
20/02/2024 18:03	75.2	55.6	48.2
20/02/2024 18:18	73.8	52.5	46.8
20/02/2024 18:33	75.5	52.3	46.5
20/02/2024 18:48	71.6	52.5	47.2
20/02/2024 19:03	74.2	54.8	46.4
20/02/2024 19:18	74.4	51.6	45.5
20/02/2024 19:33	73.1	54.3	46.1
20/02/2024 19:48	72.5	50.4	45.3
20/02/2024 20:03	70.6	50.8	46.5
20/02/2024 20:18	77.4	51.4	45.6
20/02/2024 20:33	67.9	48.2	44.5
20/02/2024 20:48	68.5	49.5	44.2
20/02/2024 21:03	67.6	49.2	43.5
20/02/2024 21:18	68.1	46.6	43.5
20/02/2024 21:33	73.3	47.5	43.6
20/02/2024 21:48	67.8	47.7	43.1
20/02/2024 22:03	74.2	50.8	43.5

Date & Time	L _{Amax} [dB]	L _{Aeq} [dB]	L _{A90} [dB]
20/02/2024 22:18	73.2	51.3	42.5
20/02/2024 22:33	65.2	46.0	42.0
20/02/2024 22:48	64.0	44.9	42.3
20/02/2024 23:03	57.6	43.1	41.0
20/02/2024 23:18	60.5	42.1	40.0
20/02/2024 23:33	55.1	41.2	40.1
20/02/2024 23:48	52.5	42.1	40.6
21/02/2024 00:03	52.7	41.2	39.4
21/02/2024 00:18	62.4	42.2	39.5
21/02/2024 00:33	67.6	41.5	39.0
21/02/2024 00:48	51.4	39.7	36.7
21/02/2024 01:03	51.9	38.9	36.4
21/02/2024 01:18	53.0	40.5	39.0
21/02/2024 01:33	59.3	43.6	39.0
21/02/2024 01:48	63.7	44.8	38.8
21/02/2024 02:03	60.7	44.5	38.4
21/02/2024 02:18	57.1	41.4	38.3
21/02/2024 02:33	60.0	41.5	36.2
21/02/2024 02:48	57.0	40.8	35.4
21/02/2024 03:03	59.8	45.2	38.1
21/02/2024 03:18	57.9	45.1	41.4
21/02/2024 03:33	62.4	45.6	41.5
21/02/2024 03:48	66.2	45.5	39.1
21/02/2024 04:03	60.6	43.7	40.1
21/02/2024 04:18	71.0	50.1	40.1
21/02/2024 04:33	70.3	47.3	40.8
21/02/2024 04:48	68.5	47.7	40.5
21/02/2024 05:03	61.4	44.5	41.3
21/02/2024 05:18	60.3	45.4	42.3
21/02/2024 05:33	62.9	45.0	42.5
21/02/2024 05:48	72.5	49.1	44.0
21/02/2024 06:03	64.2	47.5	44.7
21/02/2024 06:18	75.3	52.2	45.6
21/02/2024 06:33	68.7	51.9	46.8
21/02/2024 06:48	69.7	54.0	47.8
21/02/2024 07:03	75.1	51.4	48.2
21/02/2024 07:18	76.4	56.3	49.8
21/02/2024 07:33	77.4	61.3	50.2
21/02/2024 07:48	81.2	56.3	50.3
21/02/2024 08:03	77.7	54.8	50.4
21/02/2024 08:18	86.6	57.8	51.3
21/02/2024 08:33	67.6	55.4	51.2
21/02/2024 08:48	72.5	56.4	52.0
21/02/2024 09:03	77.5	57.2	52.1
21/02/2024 09:18	73.1	59.3	54.0
21/02/2024 09:33	72.7	59.2	53.2
21/02/2024 09:48	75.1	55.8	50.5
21/02/2024 10:03	77.6	55.8	50.8
21/02/2024 10:18	81.4	56.5	50.9
21/02/2024 10:33	72.1	55.8	51.3
21/02/2024 10:48	87.9	69.8	51.6
21/02/2024 11:03	82.9	65.8	52.0
21/02/2024 11:18	79.5	58.8	50.9

Date & Time	L _{Amax} [dB]	L _{Aeq} [dB]	L _{A90} [dB]
21/02/2024 11:33	78.1	56.5	51.5
21/02/2024 11:48	79.5	56.8	51.8
21/02/2024 12:03	81.7	59.9	52.1
21/02/2024 12:18	83.4	57.9	51.6
21/02/2024 12:33	81.9	58.7	52.0
21/02/2024 12:48	77.5	58.7	52.3
21/02/2024 13:03	82.5	59.1	52.4
21/02/2024 13:18	80.4	58.7	51.0

Date & Time	L _{Amax} [dB]	L _{Aeq} [dB]	L _{A90} [dB]
21/02/2024 13:33	77.5	56.1	51.1
21/02/2024 13:48	74.7	55.8	50.4
21/02/2024 14:03	78.2	59.0	50.9
21/02/2024 14:18	83.9	57.8	50.9
21/02/2024 14:33	76.9	57.0	50.1

APPENDIX 2 – Predicted Plant Noise Levels

AC Unit	MITSUBISHI SUZ-M50VA							
Barrier height			3.2					
Height of source			2.3					
Distance of source from barrier			2.8					
Height of listener			0.1					
Distance of listener to barrier			1.2					
Octave Band	63	125	250	500	1000	2000	4000	dB(A)
SWL	73	70	64	63	58	51	47	64
Directivity	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0	
Screening	-12.0	-14.6	-17.4	-20.3	-23.2	-26.2	-29.2	
Distance	-12.0	-12.0	-12.0	-12.0	-12.0	-12.0	-12.0	
Receptor Level	41.0	35.5	26.7	22.8	14.9	4.9	-2.1	24.9
Cumulative Leq of 3 units								30
The calculation heights and distances are relative to the centre of the receptor window								