
APH Car Park, Wythenshawe

Environmental Noise Assessment Report

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Contents

1	Introduction	1
2	Details of Proposed Development	2
3	Relevant Guidance and Standards	4
3.1	ANC Acoustics Ventilation and Overheating: Residential Design Guide 2020	4
3.2	National Planning Policy Framework	4
3.3	Manchester City Council (MCC) Core Strategy Policy DM1	4
3.4	MCC Planning and Noise Technical Guidance	4
3.5	British Standard 4142:2014+A1:2019 Methods for rating and assessing industrial and commercial sound	4
3.6	Local Planning Authority	4
4	Proposed Assessment Criteria	5
4.1	No significant increase in noise level	5
4.2	Absolute noise levels	5
4.3	Externally mounted ancillary plant	5
5	Environmental Noise Surveys	6
5.1	Local Area Description	6
5.2	Noise Survey Methodology	6
5.3	Measurement Locations	7
5.4	Noise Survey Results Summary	8
6	Assessment	11
6.1	Maximum noise level (L_{Amax}) assessment	11
6.1.1	No significant increase in noise level	11
6.1.2	Absolute limits	11
6.2	Equivalent continuous (L_{Aeq}) noise level assessment	13
6.2.1	No significant increase in noise level	14
6.2.2	Absolute limits	14
7	Noise Egress	16
7.1	External plant noise emission limits	16

8 Summary 17

Appendix I – Glossary of Acoustic Terms 18

Appendix II – Daytime Noise Survey Measurement Data 20

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1 Introduction

BDP Acoustics has been commissioned by Airport Parking & Hotels (APH) to undertake an acoustic survey and Environmental Noise Assessment report for the proposed multi storey car park at their existing site on Bradnor Road, Sharston Industrial Area, Wythenshawe, Manchester M22 4TE.

In summary, the following is report includes the following:

- Review of current planning guidance and acoustic standards related to the proposed development.
- A summary of the environmental noise surveys undertaken.
- Assessment of noise impact from the operational noise of the car park, using appropriate assessment methodology as agreed with the LPA.

A glossary of acoustic terms is presented in Appendix I – Glossary of Acoustic Terms.

2 Details of Proposed Development

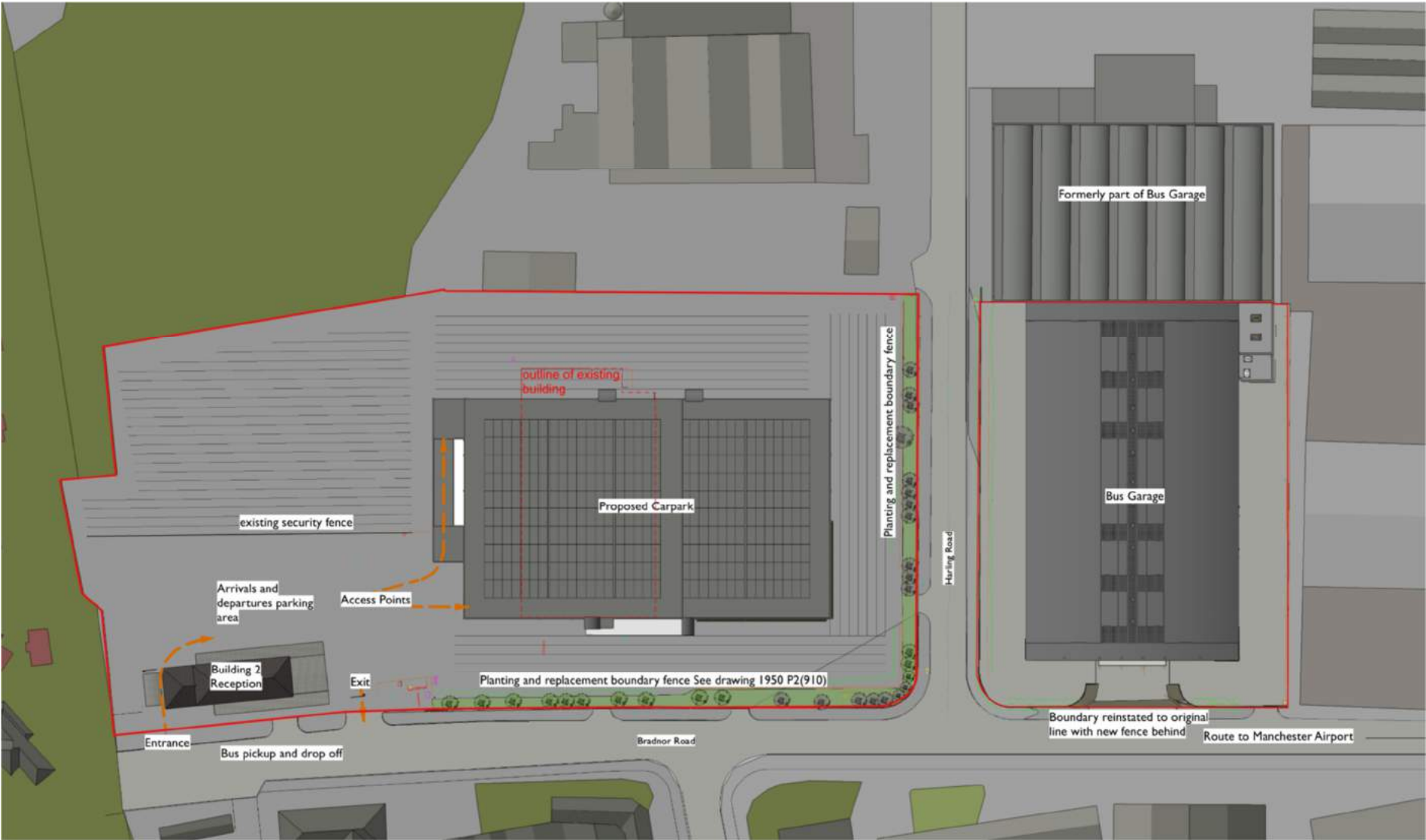
The proposed development proposals consist of construction of a multi-storey carpark comprising 4 floors which will increase the total site capacity from 2,050 vehicles to 2,600 vehicles and increase in capacity of 550 vehicles. Figure 1 illustrates the proposed site plan.

The site currently operates in the following way: vehicles enter from Bradnor Road, parking their vehicles in holding bays at the rear of the main reception, the vehicles are then moved individually by APH staff to the most appropriate parking bay which is organised in order of earliest return date.

APH customers are then collected by coach, waiting on Bradnor Road, and then shuttled to the airport.

The proposed multi storey car park will provide increased car parking capacity however due to the nature of operation of the site, the increase in noise level is not expected to be significant.

Figure 1: Proposed site plan



3 Relevant Guidance and Standards

3.1 ANC Acoustics Ventilation and Overheating: Residential Design Guide 2020

The AVO guide offers guidance relating to new residential developments that are exposed predominantly to airborne sound from transport sources. It suggests that a partially open window will provide a reduction of 13dB from outside to inside. It is this external to internal noise level reduction that has been implemented within the assessment section of this report.

3.2 National Planning Policy Framework

The NPPF sets out the Government's planning policies for England and how these are expected to be applied. It provides a framework within which locally prepared plans for housing and other development can be produced.

It advises that planning decisions should prevent new and existing developments from being put at unacceptable risks from, amongst other things, noise pollution. It goes on to advise that new development should be appropriate to its location and should mitigate and reduce to a minimum potential adverse impact resulting from noise new development and avoid noise giving rise to significant adverse effects on health and quality of life.

3.3 Manchester City Council (MCC) Core Strategy Policy DM1

Policy DM1 within this document states that all new developments should have regard to, amongst other specific issues, effects of noise, including proposals which would be sensitive to existing environmental conditions.

3.4 MCC Planning and Noise Technical Guidance

It is proposed to adopt external plant noise emission criteria in accordance with that stated for fixed plant items / commercial developments within Manchester City Council 'Planning and Noise' Technical Guidance document, dated October 2022.

3.5 British Standard 4142:2014+A1:2019 Methods for rating and assessing industrial and commercial sound

BS 4142:2014+A1:2019 (BS 4142) provides a method for rating industrial and commercial sound and a method for assessing resulting impacts upon people. The impact assessment procedure described in BS 4142 is based on the comparison of rating sound level with the background sound level prevailing at the assessment locations.

3.6 Local Planning Authority

Advice has been sought from Manchester City Council in regard to suitable noise level criteria and assessment methodology for the proposed development. The following methodology was requested by the Environmental Health Officer Sharon McAndrew on Thursday 10th August 2023:

- Demonstrate that the increase in vehicle movements will not increase noise levels significantly.
- Internal & external residential noise limits to be assessed based on Local Authorities requirements / BS 8233 as outlined in Table 2; and
- Externally mounted ancillary plant, equipment and servicing from the development, when assessed in line with BS 4142, should achieve a rating level of 5dB $L_{Aeq,T}$ below the pre-development background noise level at the nearest / most exposed noise sensitive receptors.

4 Proposed Assessment Criteria

Based on the guidance documents referenced in Section 3, and communication with the Local Planning Authority, the following criteria are proposed for the purpose of this assessment.

4.1 No significant increase in noise level

Acoustic modelling results will be compared against survey data to demonstrate no significant increase to the existing noise environment.

4.2 Absolute noise levels

Assessment of the proposed development to demonstrate that the below criteria presented in Table 1 for the nearby residential properties is achieved.

Table 1: Proposed ambient noise level criteria – nearby residential properties.

Room Type	Reference	Maximum ambient noise level
Bedrooms	BS8233 and Local Authority planning requirements	30 ($L_{Aeq,2300-0700\text{ hrs}}$), 45 ($L_{Amax, 2300-0700\text{ hrs}} < 15\text{ occurrences}$)
Living Rooms	BS8233 and Local Authority planning requirements	35 ($L_{Aeq,0700-2300\text{ hrs}}$)
Gardens and terraces	BS8233 and Local Authority planning requirements	55 ($L_{Aeq,0700-2300\text{ hrs}}$)

Assessing the proposed development against the above criteria will ensure a good internal acoustic environment within nearby residences and no loss of amenity.

4.3 Externally mounted ancillary plant

It is proposed to adopt external plant noise emission criteria in accordance with that stated for commercial developments within Manchester City Council 'Planning and Noise' Technical Guidance document, dated October 2022. This is inline with the EHO's requirements as detailed within Section 3.6.

'Externally mounted ancillary plant, equipment and servicing shall be selected and/or acoustically treated in accordance with a scheme designed so as to achieve a rating level of 5dB (L_{Aeq}) below the typical background (L_{A90}) level at the nearest noise sensitive location'.

5 Environmental Noise Surveys

5.1 Local Area Description

The proposed development site is located at the existing APH Wythenshawe car park on Bradnor Road, Sharston Industrial Area. The site currently provides parking capacity for up to 2050 vehicles, with the proposed scheme increasing this to 2600. The site is generally industrial in nature, there are residential properties to the west side of the site on Banstead Avenue, Crombie Avenue and Penarth Road. To the east of the site there are several large industrial units and to the north lies Wythenshawe Cricket and Football Club.

The nearest or most exposed existing noise sensitive receptors to the Proposed Development site are understood to be:

- Residential receptors to the west, on Crombie Avenue and Penarth Road.

5.2 Noise Survey Methodology

A series of manned short-term measurements were undertaken by BDP Acoustics at two locations, within the existing car park and at the nearest noise sensitive receptors.

The approximate measurement positions are presented in Figure 2.

On 22nd August between 17:00hrs and 18:00hrs, BDP attended site to undertake short term measurements at both measurement locations, within the site and at a location representative of the most sensitive residential receptors, in order to determine existing prevailing noise climate at the receptors and the existing noise climate within the site during a busy operational period.

Further measurements were carried out between 02:00hrs and 02:15hrs on 23rd August at measurement location 1 in order to determine the existing background noise level at the receptors in order to set suitable plant noise limits.

A following set of measurements were undertaken between 05:00hrs and 06:00hrs on 24th August, again to determine prevailing noise levels during a period of busy site activity within the night-time period.

Weather conditions during the evening (17:00-18:00) survey were dry with low wind speeds (<4m/s), temperatures varying around 20°C and cloud cover of approximately 80%. Weather conditions during the night-time (02:00-02:15) survey were dry with low wind speeds (<1m/s), temperatures of 14°C and 90% cloud cover. Weather conditions during the early morning survey (05:00-06:00) were dry with no wind, temperatures of 16°C and 50% cloud cover.

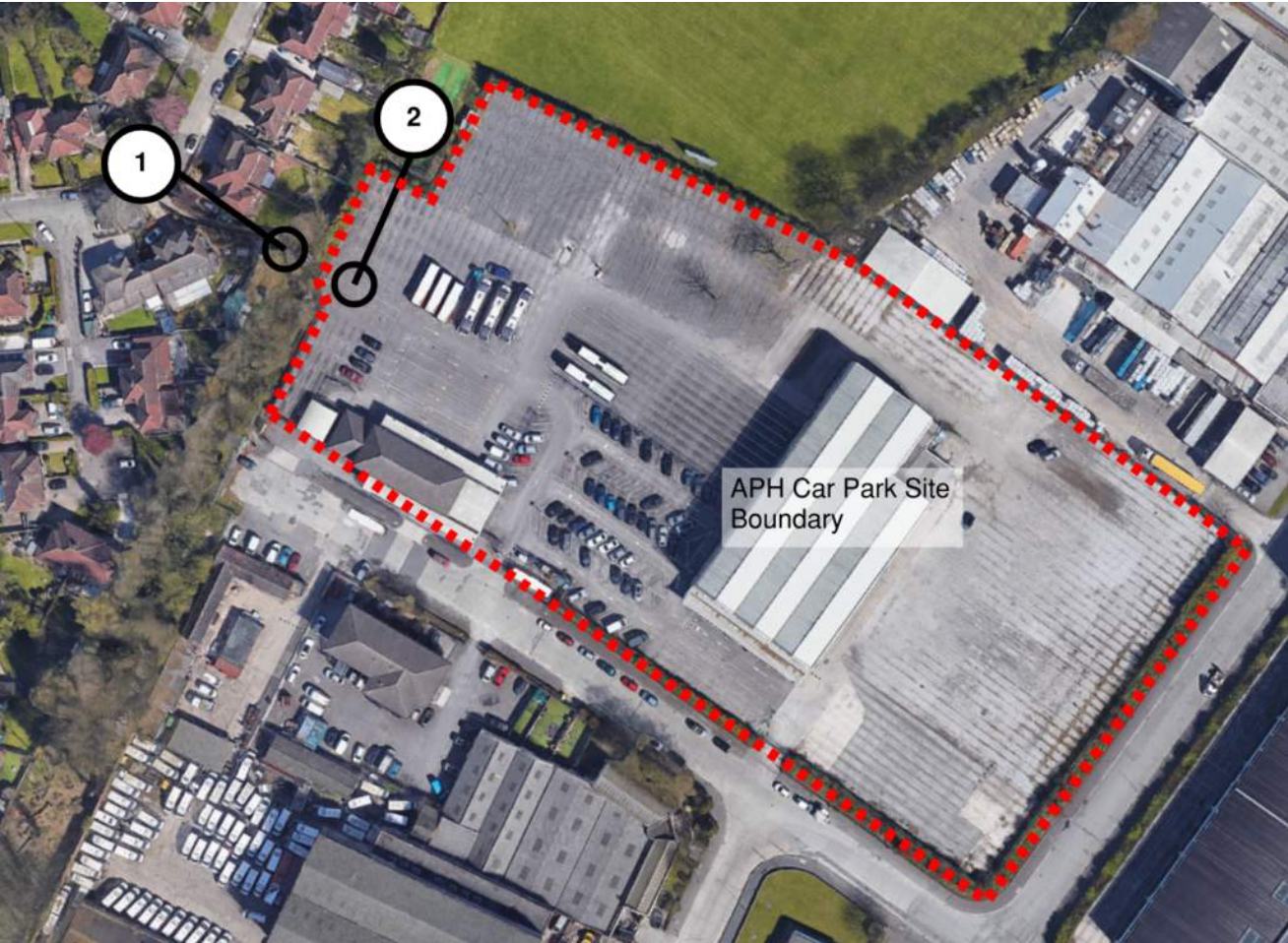
The instrumentation used for measurements consisted of a Rion NA-28 sound level meter and a Bruel & Kjaer 2260 sound level meter, which were both calibrated before and after the surveys, with no significant drift in sensitivity observed.

At each position, octave band and A-weighted fast response levels were recorded for a comprehensive suite of noise level metrics.

All measurements were undertaken by Gavin Stevenson MIOA of BDP Acoustics.

5.3 Measurement Locations

Figure 2: Approximate noise survey positions



5.4 Noise Survey Results Summary

During the evening measurements at 17:05-18:05 on 22nd August, the background noise climate at positions 1 and 2 was dominated by the M56 and the M60, the M56 is 480m to the south at its nearest point. The ambient noise climate at both locations was also dominated by the major road networks nearby, noise generated by the existing APH car park during this measurement period was low, there were a total of 8 vehicle movements as identified by APH Group Managing Director, Nick Caunter in an email received on Thursday 24th August 2023.

During the nighttime survey at 02:00am on Wednesday 23rd, the noise climate was dominated by the M56 and the nearby M60, there were a total of 2 audible car movements within the APH car park during this measurement period.

During the morning measurements at 05:00-06:00 on 24th August, a total of 15 car arrivals were noted within the measurement period, measurements at location 1 were dominated by road traffic noise from the M56/M60 and contributions from nearby birdsong. Measurement location 2 was also dominated by the major road network, with contributions from the vehicle movements within APH car park.

Table 2: Summary of measured survey results

Position	Start (hh:mm)	End (hh:mm)	$L_{Aeq,5mins}$ Range (dB)	$L_{A90,5mins}$ Range (dB)	$L_{AFmax,5mins}$ Range (dB)
1	17:05	18:05	50 - 53	48 - 50	58 - 68
2	17:05	18:05	47 - 51	46 - 48	50 - 64
1	05:06	06:01	47 - 50	44 - 48	51 - 71
2	05:06	06:01	44 - 49	42 - 46	55 - 67
2	01:59	02:14	42 - 43	40 - 41	47 - 51

Figure 3: Noise monitoring position 1



Figure 4: Noise monitoring position 2



6 Assessment

6.1 Maximum noise level (L_{Amax}) assessment

In line with the Local Planning Authorities requirements for the site, maximum noise levels are to be assessed in the following two ways.

- Assessment of the development must demonstrate that noise levels in the area will not increase significantly.
- The development must be designed to achieve the internal and external levels specified by the Local Authority, outlined in Table 1.

For this assessment, the slamming of car doors are considered to be the dominant noise source controlling the maximum (L_{Amax}) noise levels.

6.1.1 No significant increase in noise level

The maximum noise events (L_{Amax}) currently at the site are the shutting of car doors. Site operation and the location of cars near to the residences are not proposed to change as part of the proposals, and so the L_{Amax} levels incident upon the residences will not increase.

6.1.2 Absolute limits

BDP Acoustics has undertaken a modelling exercise in line with the criteria specified; 45dB $L_{Amax,F}$ not increased more than 15 times, to determine the impact of these maximum noise events at the residential receptors, the following assumptions have been made:

- Point source located at 0.5m height above ground, has been used to represent the maximum noise event being assessed.
- Noise level used in the assessment has been taken as the typical instantaneous maximum level measured at 5m from a car door being 'slammed' shut, in a manner considered worst case.
- A sound reduction of 13dB has been assumed through an open bedroom window, as per AVO guidelines.

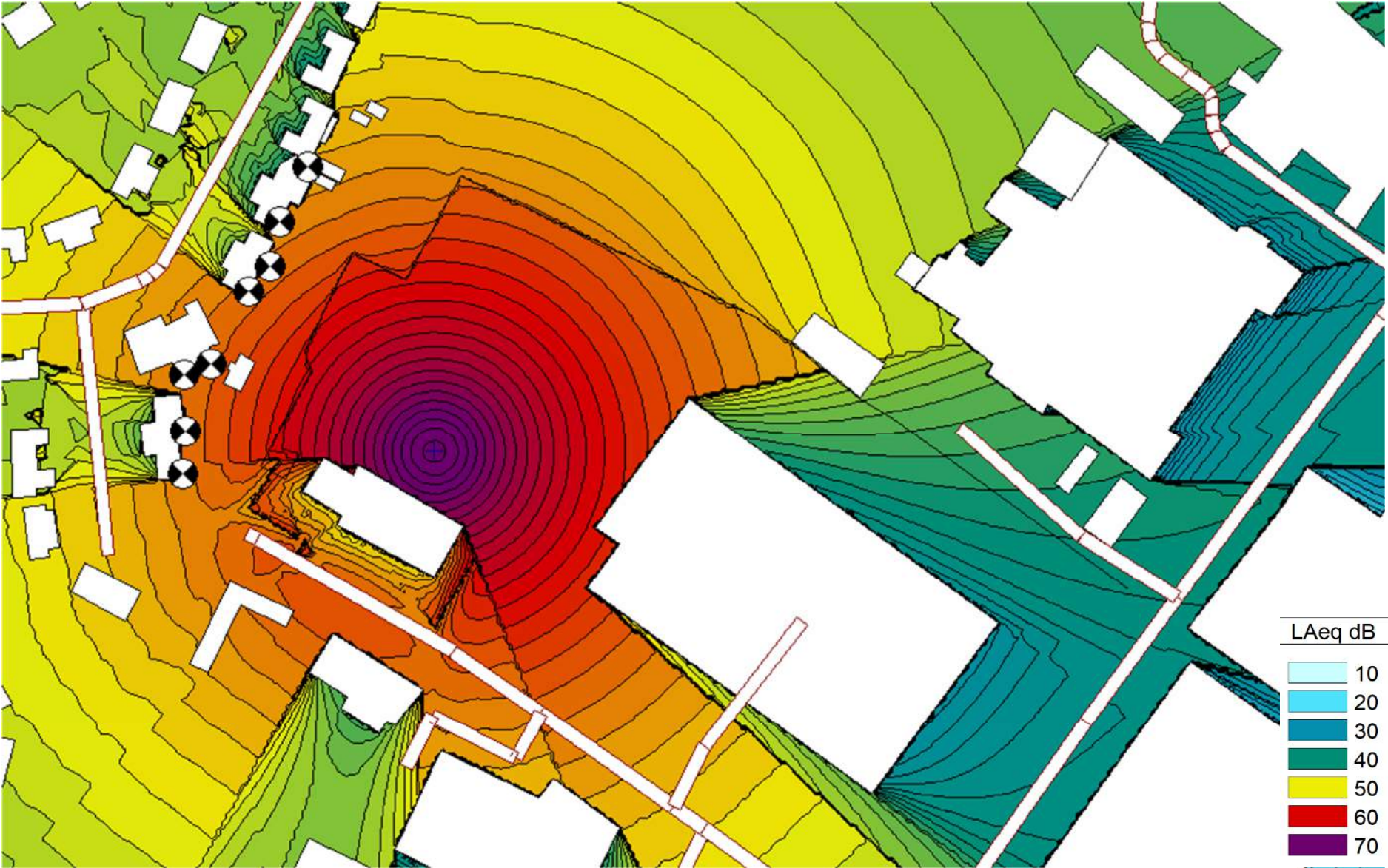
The modelling exercise undertaken, assessing a car door shutting in the area of the car park where this will occur most often and closest to the residences indicates the highest level expected at the façade of the nearby residences to be 55.8 dB $L_{Amax,F}$, and an internal noise level of 42.8 dB $L_{Amax,F}$. This indicates that maximum noise events at the site are not be expected to exceed the specified 45dB $L_{Amax,F}$.

Table 3: Noise measurement data typical for car door slam

Measurement description	Measurement distance, m	Level, $L_{Amax,F}$ dBA
Door slam	5	82

Figure 5 below presents the maximum noise event point source of a car door being slammed in a representative location with a grid of the resulting sound levels at the site and the specific noise levels these activities have on the NSR's.

Figure 5: Aerial view of the APH proposed car park illustrating the resulting specific maximum sound levels at the site from the maximum noise event of a car door slamming.



6.2 Equivalent continuous (L_{Aeq}) noise level assessment

In line with the Local Planning Authorities requirements for the site, equivalent continuous operational noise levels are to be assessed in the following two ways.

- Assessment of the development must demonstrate that noise levels in the area will not increase significantly.
- The development must be designed to achieve the internal and external levels specified by the Local Authority, outlined in Table 1.

The existing car park has a capacity of 2050, increasing to 2600 through the proposed development, an increase of 27%.

BDP Acoustics were provided arrival and departure data of the busiest arrival period across the previous two weeks of site activity, during their busiest summer months of operation.

The data presented documented the busiest arrival hour totalled 27 vehicle arrivals, increasing this figure in line with the overall capacity increase of 27%, the result is 34 arrivals as an absolute worst case busiest arrival hour providing a robust assessment.

BDP Acoustics has undertaken three-dimensional computer modelling in CadnaA, to predict the specific sound levels at the nearest noise sensitive receptors to the site, the following assumptions have been made:

- Total number of vehicle arrivals is based on data provided to BDP by APH Wythenshawe, which indicated the busiest arrival period to be between 02:00-03:00hrs, with a total of 27 arrivals within the hour period, increased to 34 in line with overall capacity increase.
- Total number of door slams in the drop off bay is 2 per arrival vehicle, with an additional door slam to represent the APH operator accessing the vehicle to move

to its storage location, totalling 102 door slams at arrivals and 102 door slams at departures.

- Line sources at 0.5m height above ground to represent the 34 vehicles, entering to the drop off bay, and also exiting from the collection point.
- Point sources at 0.5m height above ground, have been used to represent the 102 door slams at arrivals and a further 102 door slams at departures.
- Noise sources have been implemented at the top floor of the multi storey car park in order to assess the impact of the increased elevation, given there is a line of sight for some residences. The modelling indicates that the predominant noise source are those located around the arrivals and departure's location which control the resultant levels at receptors.
- A sound reduction of 13dB has been assumed through an open bedroom window, as per AVO guidelines.

Noise data of car movements and door slams measured by BDP Acoustics has been used to determine typical noise levels for the proposed activities anticipated to take place at the new car park. The noise measurements used in this assessment have been described in the table below.

Table 4: Noise measurement data typical for car park operation

Measurement description	Measurement distance, m	Level, $L_{Aeq,T}$ dBA
Vehicle arriving / leaving to / from a parking space near to the measurement location	5	61
Door slam	5	70

Table 5 below presents a summary of the resultant noise levels at the nearest noise sensitive receptor (NSR) as indicated by the three-dimensional computer modelling undertaken on CadnaA, compared to the existing noise climate as measure by our noise survey and also to the absolute noise levels set (with 13dB added to gain facade levels, allowing for an open window).

Table 5: Resultant noise levels compared to proposed criteria

Receiver	Resultant noise level at NSR $L_{Aeq,T}$ dBA	Lowest measured existing level $L_{Aeq,T}$ dBA	Absolute criteria at NSR $L_{Aeq,T}$ dBA
Residential bedrooms facade, external	35	44*	43
Gardens and terraces	34	44*	55

**lowest measured $L_{Aeq,5}$ minutes during 0500 – 0600 hours survey*

Figure 6 below presents the proposed location of moving vehicles and door slams with a grid of the resulting sound levels at the site and the specific noise level these activities have on the NSR's.

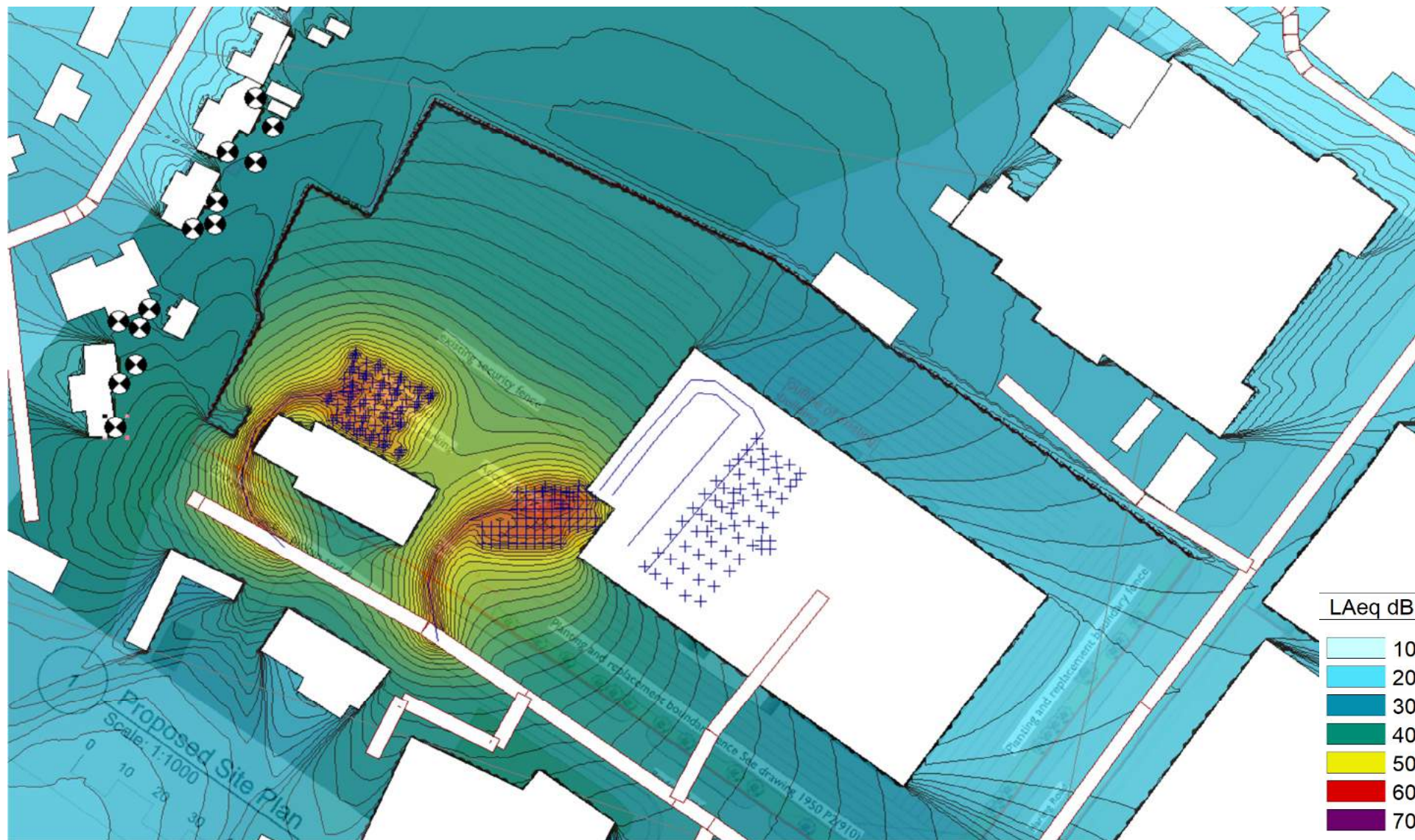
6.2.1 No significant increase in noise level

As can be seen from the results within table 5, the calculated resultant noise levels are below existing lowest environmental noise levels at the NSR location, and so are not expected to significantly increase existing noise levels.

6.2.2 Absolute limits

As can be seen from the results within table 5, the calculated resultant noise levels are below the proposed absolute limit criteria..

Figure 6: Aerial view of the APH proposed car park illustrating a grid with the resulting specific sound levels at the site from the anticipated moving vehicles and door slams.



7 Noise Egress

External plant noise emissions associated with the development should be suitably controlled in order to meet the Local Planning Authorities requirements and to maintain residential amenity at nearby noise sensitive receptors (NSR) properties.

Details of proposed fixed plant installations and operating times are unknown at this stage, however, to inform a reasonable worst-case assessment it is assumed that any plant associated with the proposed development is likely to be operational during the nighttime.

7.1 External plant noise emission limits

The following cumulative noise limits, at the nearest/most exposed residential NSR properties to the proposed development site, are proposed for fixed items of plant associated with the development, in-line with the Local Planning Authority's guidance.

Table 6: Proposed nearest or most exposed noise sensitive receptor (NSR) noise limits for fixed plant and equipment installations associated with the development.

Receiver location	Daytime / night-time period	Lowest measured free-field equivalent noise level, $L_{AF90,T}$ (dB)	Cumulative external plant noise limit, $L_{Ar,Tr}$ (dB)
Closest noise sensitive residential façades facing onto APH Wythenshawe car park	Daytime (07:00 – 23:00)	48	43
	Night-time (23:00 – 07:00)	40	35

8 Summary

BDP Acoustics has been commissioned by APH Car Park's to undertake an acoustic survey and assessment to appraise potential noise levels from the increase in capacity and operation of an existing car park in Wythenshawe.

The proposed development consists of car parking capacity for 2600 vehicles, existing capacity is 2050.

An assessment of site noise levels has been carried out in the context of noise sensitive receptors and has been assessed against criteria specified by the Local Planning Authority.

An environmental noise survey has been carried out to determine the existing noise climate at the site and at the nearest or most exposed noise sensitive receptor locations.

Based on the assessment criteria, relevant guidance documents referenced, measured environmental noise survey data and modelling undertaken a site suitability assessment has been undertaken and indicates that operational noise at the site is not expected to cause any loss of amenity on residential receptors in line with LPA criteria.

Operational phase fixed plant and equipment external noise emissions can be suitably mitigated through imposing noise limits in accordance with the assessment criteria at the nearest or most exposed noise sensitive receptors. Based on the proposed new building proximity to the nearest noise sensitive receptors, these limits can be achieved with suitable equipment selections and conventional plant and equipment attenuation measures.

All assessments have been undertaken as 'worst case' scenarios, i.e.,

- Maximum recorded occupancy hour, adjusted in line with overall capacity used as assessment period.
- Maximum noise event door slam level is considered worst case, typically site users would not be closing doors with this level force.
- Modelling exercise used the busiest arrivals and departures period happening simultaneously.

Appendix I – Glossary of Acoustic Terms

A-Weighting

Normal hearing covers the frequency range from approximately 20Hz to 20kHz but sensitivity is greatest between about 500Hz and 8kHz. The "A-Weighting" is an electronic filters network incorporated in sound level meters which approximately corresponds to the frequency response of the ear. The unit of measurement of A-weighted sound level is dBA or dB(A).

Break-in

Noise transmission into a structure from the outside.

CadnaA Noise Modelling Software

CadnaA is an internationally recognised software package for calculation and assessment of environmental noise resulting from industrial and traffic sources. From input of calibrated noise sources, topographical data and building locations, a 3D model of an area can be produced. The propagation of noise from user defined sources can then be evaluated, taking into account height data and building locations. Noise levels at specific locations (such as a particular building façade) can then be calculated.

The standard outdoor noise propagation model used in the CadnaA program is in accordance with ISO 9613 Parts 1 & 2: 1996 '*Attenuation of sound during propagation outdoors*'.

Decibel, dB

This is a relative unit of measurement which in acoustics is the unit to measure sound. The human ear has an approximately logarithmic response to acoustic pressure over a very large dynamic range (typically 20 micro-Pascals to 100 Pascals). The dB is a logarithmic unit used to describe a ratio between the measured level and a reference or threshold level of 0dB (re. 20 micro-Pascals). We therefore use a logarithmic scale to describe sound pressure level, intensities and sound power levels. Subjectively, an increase of 10dB corresponds to a doubling in the perceived loudness of sound.

Equivalent Continuous Sound Level, L_{eq} or L_{Aeq}

The equivalent continuous sound level, L_{eq} is a notional sound level. It is the sound level, which, if maintained for a given length of time, would produce the same acoustic energy as a fluctuating noise over the same time period. (The formula for the above is implemented electronically in all good sound level meters and it is customary to measure rather than calculate the equivalent continuous sound level.) L_{Aeq} (A-weighted L_{eq}) is widely used to measure any environmental noise which varies considerably with time.

Free Field

A sound field region with no adjacent reflecting surfaces.

Octave and Third Octave Bands

The human ear is sensitive to sound over a range of approximately 20Hz to 20kHz, and is generally more sensitive to medium and high frequencies than to low frequencies. In order to define the frequency content of a noise, the spectrum is divided into frequency bands (continuous range of frequencies between two limiting frequencies), and the sound pressure level is measured in each band. The most commonly used frequency bands are octave bands, in which the mid-frequency of each band is twice that of the band below it. (For instance the octave bands above and below the 500Hz octave band are 1kHz and 250Hz respectively). For finer analysis, each octave band may be split into three one-third octave bands or in some cases, fine frequency bands.

Rating Level, $L_{Ar,Tf}$

The specific sound level plus any adjustment for the characteristic features of the sound, as described in BS 4142:2014.

Sound Insulation

Airborne sound insulation refers to the process of separating, by a physical barrier, a space to be protected from a noise source or space containing a noise source.

Statistical Level: L_{90} or L_{A90}

Sound pressure level that is exceeded for 90% of the measurement time. Consequently it is indicative of the general background noise level in the absence of any higher level short duration events that occur during the period.

Statistical Level: $L_{max,T}$

A noise level index defined as the maximum RMS sound pressure level measured during the measurement period, T. L_{max} is sometimes used for the assessment of occasional loud noises, which may have little effect on the overall L_{eq} noise level but will still affect the noise environment. Unless described otherwise, it is measured using the 'fast' sound level meter response.

Time Weighting

One of the standard averaging times (Fast (F), Slow (S)) used for the measurement of RMS sound pressure level in sound level meters, specified in BS 5969.

Appendix II – Daytime Noise Survey Measurement Data

Table 2: Noise survey data

Start date and time		Position	L _{Aeq,5min}	L _{A90,5min}	L _{AFMax,5min}	L _{eq,5min}							
						63	125	250	500	1000	2000	4000	8000
22/08/2023	17:05	1	48	46	56	53.3	48.1	46.7	45	45.5	37	29.7	24
22/08/2023	17:10	1	48	47	58	53.4	45.4	43.4	44.8	45.7	37.9	33	28.1
22/08/2023	17:15	1	49	46	59	53.6	46.5	43.7	45.1	46.5	40	36.6	30.6
22/08/2023	17:20	1	47	48	55	52.6	45.9	42.9	42.3	44.8	37.8	33.7	25.2
22/08/2023	17:25	1	51	46	64	55.3	55.2	52.4	48.2	47	39.1	34.5	30
22/08/2023	12:30	1	49	47	60	55	49.2	48.5	44.8	46	38.9	34.3	29.8
22/08/2023	17:35	1	48	47	58	55	48.3	47.3	44.9	45.4	36.4	26.6	20.6
22/08/2023	17:40	1	48	47	58	54.1	48.1	46.4	44.3	45.6	37.7	30.2	25.1
22/08/2023	17:45	1	47	47	51	52.4	46.1	43.5	43	45.1	37.2	33.2	28.9
22/08/2023	17:50	1	47	46	50	53.7	45.8	43	43	45.1	37.1	32.3	27.8
22/08/2023	17:55	1	48	46	55	56	47	44.1	43.8	45.6	36.8	27	19.8
22/08/2023	18:00	1	49	47	59	53.7	50	51.1	44.6	46.4	37.2	26	19.7
22/08/2023	17:05	2	51	49	64	53.05	48.49	47.39	47.12	48.44	41.86	36.43	33.01
22/08/2023	17:10	2	52	49	68	54.57	47.09	45.74	46.54	48.91	42.64	39.34	36.48
22/08/2023	17:15	2	52	50	60	53.67	47.57	45.71	47.85	49.48	43.01	39.95	37.08
22/08/2023	17:20	2	50	48	59	54.48	46.91	44.95	45.05	47.09	40.23	35.06	31.43
22/08/2023	17:25	2	53	50	65	56.03	56.43	52.56	49.33	49.12	42.98	40.96	38.47
22/08/2023	17:30	2	52	50	59	54.7	49.4	48.65	46.99	48.96	43.04	41.06	38.69
22/08/2023	17:35	2	50	49	61	55.57	48.74	47.69	45.9	47.97	40.54	33.16	29.07
22/08/2023	17:40	2	51	50	59	55.05	48.3	47.86	46.04	48.26	41.27	36.15	33.09
22/08/2023	17:45	2	51	49	63	51.26	48.6	45.75	45.21	48.27	42.48	40.77	38.57
22/08/2023	17:50	2	50	49	56	54.22	46.38	45	45.54	47.46	41.02	38.83	36.62
22/08/2023	17:55	2	50	48	58	56.3	47.44	44.76	45.38	47.56	39.92	31.53	27
22/08/2023	18:00	2	51	49	58	53.53	49.94	50.73	46.18	48.01	40.1	30.28	25.66

Start date and time		Position	L _{Aeq,5min}	L _{A90,5min}	L _{AFMax,5min}	L _{eq,5min}							
						63	125	250	500	1000	2000	4000	8000
23/08/2023	01:59	2	42	40	47	46.63	38.45	36.06	38.58	39.05	30.55	21.8	17.68
23/08/2023	02:04	2	43	41	48	44.72	40.28	38.11	39.04	40.2	31.46	21.74	17.96
23/08/2023	02:09	2	43	41	51	49.23	41.6	37.18	39.71	40.2	31.28	22.11	17.23
24/08/2023	05:06	1	47	45	62	50.6	44.57	44.46	43.05	44.67	36.31	37.59	30.3
24/08/2023	05:11	1	45	44	51	50.78	41.09	37.74	41.57	43.21	34.12	27.22	22.53
24/08/2023	05:16	1	47	45	61	48.57	43.48	39.63	42.65	44.4	35.73	38.2	36.08
24/08/2023	05:21	1	48	47	62	48.56	42.52	39.63	43.57	45.86	38.62	38.66	35.19
24/08/2023	05:26	1	48	46	58	49.35	43.53	39.15	43.45	46.41	37.9	30.59	23.59
24/08/2023	05:31	1	48	47	55	50.11	44	40.95	44.24	46.96	38.64	32.76	24.58
24/08/2023	05:36	1	49	48	54	52.15	44.49	42.64	44.5	47.17	39.18	30.57	25.55
24/08/2023	05:41	1	49	47	57	52.06	45.41	44.52	44.76	46.83	39.07	31.11	21.08
24/08/2023	05:46	1	49	47	71	51.1	45.28	42.43	44.65	46.71	38.36	39.3	39.22
24/08/2023	05:51	1	48	46	62	48.95	44.72	41.71	44.49	45.58	38.43	32.84	27.91
24/08/2023	05:56	1	48	46	63	50.56	42.25	39.66	42.73	45.2	36.97	39.37	38.44
24/08/2023	05:06	2	45	43	55	53.2	43.7	44.3	42.2	41.9	32.6	40.5	32.1
24/08/2023	05:11	2	47	43	66	53.9	40.1	39.5	40.8	41.2	32.2	33.3	28.2
24/08/2023	05:16	2	44	42	56	49.6	42.4	40.6	42.1	42.1	33.2	42.4	39.2
24/08/2023	05:21	2	48	43	65	50.6	41.5	40.8	42.9	43.2	41.1	43.4	38.4
24/08/2023	05:26	2	49	44	66	52	42.6	40.6	42.6	43.9	36.5	28.8	18.2
24/08/2023	05:31	2	46	44	62	52.3	42.8	41.9	43.3	44.8	38.1	31.5	18.8
24/08/2023	05:36	2	47	45	57	55.2	44.1	43	43.3	45.2	39.7	34.5	20.8
24/08/2023	05:41	2	48	46	58	54.3	44.4	45.2	43.8	44.6	40	36.9	21.6
24/08/2023	05:46	2	48	45	64	54	44.5	43.7	43.6	43.6	35.6	34.3	30.2
24/08/2023	05:51	2	47	45	63	49.8	42.1	41.8	42.8	43.4	34.5	27.7	20.6
24/08/2023	05:56	2	46	45	57	51.5	41	40.9	41.9	45.1	37.5	37	26.3