



KNOWSLEY METROPOLITAN BOROUGH COUNCIL

HALEWOOD LUF - GRACE PARK

NOISE IMPACT ASSESSMENT

JANUARY 2026

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EXECUTIVE SUMMARY

Wardell Armstrong LLP (WA) have been instructed by Knowsley Metropolitan Borough Council to carry out a noise assessment for the proposed Artificial Grass Pitches (AGP) and new car park located at Grace Park. This assessment considers the potential noise impact from the proposed development, on sensitive receptors, during daytime use.

Assessment

The assessment has been undertaken in accordance with relevant standards, guidance and policy and includes the assessment of:

- External Change in Noise Level Assessment
- Internal Break-in Assessment for Daytime $L_{Aeq,T}$ values
 - a) Window Open scenario for ground floor spaces
 - b) Window Closed scenario for ground floor spaces
- Internal Break-in Assessment for Daytime L_{AFmax} values
 - a) Window Open scenario for ground floor spaces
 - b) Window Closed scenario for ground floor spaces
- External Amenity Assessment

To establish the existing background sound levels at sensitive receptors a noise survey has been carried out at representative locations during daytime periods. Noise modelling of the proposed development has been undertaken. The results of the computer noise modelling have been used to calculate the potential noise impact from the proposed development at noise sensitive receptors surrounding the site.

Findings

The noise assessment demonstrates that to reduce the noise impact on the nearest dwellings to within the relevant national guidelines, mitigation in the form of an acoustic barrier (3.0m or 4.0m) along the northern and eastern perimeter of the development is required.

With this mitigation in place, it is expected that the noise impact from the proposed development on the nearest dwellings will be at the No Observed Adverse Effect Level (NOAEL) for the 4.0m option and at the Lowest Observed Adverse Level (LOAEL) for the 3.0m option, in accordance with the NPPF.

1 INTRODUCTION

1.1 Background

1.1.1 Wardell Armstrong LLP (WA) have been instructed by Knowsley Metropolitan Borough Council (the 'Client') to undertake a noise impact assessment (NIA) that will support the proposed development of the site.

1.2 Site Location

1.2.1 Grace Park is located off Wood Road to the north and Leather's Lane to the southeast. The park is amongst a predominantly residential area with dwellings to the north, east, south and west.

Figure 1: Approximate Site Location Plan



1.2.2 The application is for full planning permission for the external landscape and public realm works including the creation of two artificial grass playing pitches with associated fencing and infrastructure, a flexible use civic plaza, a clubhouse with changing facilities and café facilities, a car park with associated EV charging points, floodlighting, CCTV, general landscaping improvements, including a shared use pedestrian/cycle route, further circulation routes in addition to the shared route,

acoustic fencing, a feature play area, sustainable drainage works, and an area of hardstanding to include a temporary construction compound.

1.3 Consultation

1.3.1 Consultation has been undertaken with Knowsley Metropolitan Borough Council (KMBC) regarding the proposed methodology which included baseline survey locations, assessment approach, policy, standards and guidance to inform the assessment.

1.3.2 A response was received from the LPA and the comments made by the LPA have been reviewed and incorporated into the assessment where necessary.

Comments Received from Local Planning Authority (March 2025)

1.3.3 Following submission of the previous noise report in March 2025, comments were received from Environmental Health at KMBC. This version of the report is intended to address the comments raised.

2 RELEVANT STANDARDS, GUIDANCE AND POLICY

2.1 Standards

2.1.1 The following standards presented below have been used whilst preparing the assessment:

- ISO 9613-2:2024 Acoustics – Attenuation of sound during propagation outdoors Part 2: Engineering method for the prediction of sound pressure levels outdoors¹ (ISO 9613-2)
- British Standard 8233: 2014 Guidance on sound Insulation and noise reduction for buildings² (BS 8233);
- Approved Document O: Overheating, 2021 (AD:O).

2.1.2 Further details of these documents are included in Appendix A.

2.2 Guidance

2.2.1 The following guidance documents presented below have been used whilst preparing the assessment:

- Institute of Environmental Management and Assessment (IEMA) (2014) Guidelines for Environmental Noise Impact Assessment³
- World Health Organization (WHO) (1999) Guidelines for Community Noise⁴
- Artificial Grass Pitch (AGP) Acoustics - Planning Implications Sport England 2015⁵ (SE-AGP)

2.3 Planning Policy Context

2.3.1 There are a number of policies at the national and local level that will be relevant to the Proposed Development as listed below:

- National Planning Policy Framework, 2024⁶ (NPPF)

1 International Organization for Standardization (2024). ISO 9613-2: Acoustics – Acoustics — Attenuation of sound during propagation outdoors Part 2: Engineering method for the prediction of sound pressure levels outdoors. ISO, London

2 British Standards Institution (2014). BS 8223:2014, Guidance on sound insulation and noise reduction on buildings. BSI: London, UK

3 Institute of Environmental Management and Assessment (2014). Guidelines for Environmental Noise Impact Assessment. IEMA, London.

4 World Health Organization (1999). Guidelines for community noise. WHO, Geneva.

5 Sport England (2015) Artificial Grass Pitch (AGP) Acoustics – Planning Implications <https://sportengland-production-files.s3.eu-west-2.amazonaws.com/s3fs-public/agp-acoustics-planning-implications.pdf?VersionId=eORPPBrK6irJ2FqvHWitOASeYu6U egt>

6 Ministry of Housing, Communities & Local Government (2024). National Planning Policy Framework. [online] Available at: <https://www.gov.uk/government/publications/national-planning-policy-framework--2>.

- Planning Policy Guidance – Noise 2019¹ (PPG)
- Noise Policy Statement for England², 2010
- Planning Practice Guidance – Noise, 2019³ (PPG - Noise).
- Knowsley Local Plan Core Strategy, 2016⁴.

2.3.2 Further details of these documents are included in **Appendix A**.

2.4 IEMA Guidelines for Environmental Noise Impact Assessment 2014

2.4.1 The criteria for short-term change in sound levels in accordance with the IEMA guidelines for Environmental Noise Impact Assessment is reproduced in **Table 1**.

Table 1: Impact from the Change in Sound Levels	
Short-term Impact Classification	Sound Level Change dB L _{pAeqT} (Positive or negative) T = 16hr day or 8hr night
Negligible	≥1 dB and <3dB
Minor	≥3 dB and <5 dB
Moderate	≥5 dB and <10 dB
Major	≥10 dB

2.5 BS 8233:2014 - Guidance on sound insulation and noise reduction for buildings

2.5.1 The criteria in accordance with BS 8233 for daytime, night-time and night-time maximum internal sound levels is reproduced in **Table 2**.

Table 2: Recommended Internal Ambient Noise Levels – BS 8233			
Activity	Location	07:00 – 23:00 Hrs	23:00 – 07:00 Hrs
Resting	Living Room	35 dB L _{Aeq,16 hr}	-
Dining	Dining Room/Area	40 dB L _{Aeq,16 hr}	-
Sleeping	Bedroom	35 dB L _{Aeq,16 hr}	30 dB L _{Aeq,8 hr} 45 dB L _{AFmax}

1 Ministry of Housing, Communities & Local Government (2029). Planning Practice Guidance. [online] Available at: <https://www.gov.uk/guidance/noise--2>

2 Department of Environmental, Food & Rural Affairs (2010). Noise Policy Statement for England. [online] Available at: <https://www.gov.uk/government/publications/noise-policy-statement-for-england>

3 Ministry of Housing, Communities & Local Government. (2019). Planning Practice Guidance, Noise. (online). Available at: <https://www.gov.uk/guidance/noise--2>

4 Knowsley Borough Council, 2016. Knowsley Local Plan: Core Strategy. [online] Available at: <https://localplanmaps.knowsley.gov.uk/documents/knowsley-local-plan-adopted-core-strategy.pdf>

2.5.2 External amenity areas have been assessed against the criteria stated in BS8233, which states that it is desirable that the external noise level does not exceed 50 dB $L_{Aeq,T}$, with an upper guideline value of 55 dB $L_{Aeq,T}$ which would be acceptable in noisier environments.

2.5.3 For this assessment daytime hours are taken to be 07:00 to 23:00 hours and nighttime hours to be 23:00 to 07:00 hours.

2.6 WHO 1999 – Guidelines for community noise and Approved Document O: Overheating

2.6.1 The criteria in accordance with WHO 1999 and Approved Document for daytime, night-time and night-time maximum internal sound levels is reproduced in **Table 3**

Table 3: Recommended Ambient Noise Levels – WHO and Approved Document O			
Specific environment	Affect	$L_{Aeq,T}$	L_{AFmax}
Outdoor living area	Serious annoyance, daytime and evening	55 dB $L_{Aeq,16\text{ hr}}$	-
	Moderate annoyance, daytime and evening	50 dB $L_{Aeq,16\text{ hr}}$	
Dwelling, indoors Inside bedrooms	Speech intelligibility & moderate annoyance, daytime & evening	35dB $L_{Aeq,16\text{hr}}$	45dB L_{AFmax}
	Sleep disturbance night-time	30 dB $L_{Aeq,8\text{ hr}}$	
Bedrooms	Threshold where windows will likely be closed due to high noise levels	45dB $L_{Aeq,8\text{hr}}$	55dB L_{AFmax}

2.7 Artificial Grass Pitch (AGP) Acoustics - Planning Implications Sport England 2015

2.7.1 The criteria in accordance with the Sport England sound level criteria is reproduced in **Table 4**.

Table 4: Recommended External Ambient Noise Levels – Sport England 2015	
Activity	Upper Noise Limit external to Residential Properties and Within External Living Area (dB $L_{Aeq,1\text{hr}}$)
AGP activity	50

4 ASSESSMENT CRITERIA

4.1.1 In order to enable the assessment of the proposed development in terms of LOAEL and SOAEL, **Table 5** presents equivalent noise levels and associated actions with the target noise level criteria identified. The noise level criteria below have been derived from standards and design guidance.

- BS 8233:2014¹ 'Guidance on sound insulation and noise reduction for buildings – Code of practice'
- World Health Organisation² (1999) 'Guidelines for community noise'
- IEMA³ (2014) 'Guidelines for Environmental Noise Impact Assessment'

Table 5: Noise Level Criteria and Actions

Effect Level	Assessment Type and Noise Sources	Noise Level Criteria	Justification for Effect Level-Action Required
No Observed Effect Level (NOEL) – No Observed Effect	<u><i>Break-in Assessment (WHO 1999, BS8233 2014 and AD:O 2021) and External Amenity (WHO 1999)</i></u> Absolute internal noise criteria for the following noise sources with windows open: • AGP • Car Parks	Noise levels are less than the following: <i>Living Rooms:</i> • 35 dBL_{Aeq,16hours} <i>Kitchens, Dining Rooms, and Studies:</i> • 40 dBL_{Aeq,16hours} <i>Bedrooms Rooms:</i> • 35 dBL_{Aeq,16hours} • 30dB L_{Aeq,8hr} L _{AFmax,2min} noise levels do not exceed: • 55dB L_{AFmax} based on 10th highest L_{AFmax,2min} sample) <i>External Amenity:</i> • 50 dBL_{Aeq,16hours}	Justification for Effect Level: Less than threshold values in Table 4 in BS8233:2014 and Table 1 in World Health Organisation (1999) Guidelines on Community Noise Action Required: None
	<u><i>Change in Noise Level (IEMA 2014)</i></u> Change in noise levels for the following noise sources: • AGP • Car Parks	Increase in ambient L _{Aeq,T} due to contribution from proposed development of ≤2.9dB.	Justification for Effect Level: Within the 'None/Not significant' effect classification range in Table 7.12 in IEMA 2014 guidance Guidelines for Environmental Noise Impact Assessment Action Required: None
No Observed Adverse Effect Level (NOAEL) – No Observed Adverse Effect	<u><i>Break-in Assessment (WHO 1999, BS8233 2014 and AD:O 2021) and External Amenity (WHO 1999)</i></u> Absolute internal noise criteria for the following noise sources with windows open:	Noise levels are equal to the following: <i>Living Rooms:</i> • 35 dBL_{Aeq,16hours} <i>Kitchens, Dining Rooms, and Studies:</i> • 40 dBL_{Aeq,16hours}	Justification for Effect Level: Equal to threshold values in Table 4 in BS8233:2014 and Table 1 in World Health Organisation (1999) Guidelines on Community Noise

1 British Standards Institution (2014). BS 8223:2014, Guidance on sound insulation and noise reduction on buildings. BSI: London, UK

2 World Health Organization (1999). Guidelines for community noise. WHO, Geneva

3 Institute of Environmental Management and Assessment (2014). Guidelines for Environmental Noise Impact Assessment. IEMA, London

Table 5: Noise Level Criteria and Actions

Effect Level	Assessment Type and Noise Sources	Noise Level Criteria	Justification for Effect Level-Action Required
	- AGP - Car Parks	Bedrooms Rooms: 35 dBL_{Aeq,16hours} 30dB L_{Aeq,8hr} L_{AFmax,2min} noise levels do not exceed: 55dB L_{AFmax} based on 10th highest L_{AFmax,2min} sample) External Amenity: 55 dBL_{Aeq,16hours}	Action Required: None
	<u>Change in Noise Level (IEMA 2014)</u> Change in noise levels for the following noise sources: - AGP - Car Parks	Increase in ambient L_{Aeq,T} due to contribution from proposed development of 3.0dB - ≤4.9dB.	Justification for Effect Level: Within the 'Slight' effect classification range in Table 7.12 in IEMA 2014 guidance Guidelines for Environmental Noise Impact Assessment Action Required: None
Lowest Observed Adverse Effect Level (LOAEL) – Observed Adverse Effect Level	<u>Break-in Assessment (WHO 1999, BS8233 2014 and AD:O 2021) and External Amenity (WHO 1999)</u> Absolute internal noise criteria for the following noise sources with windows open: - AGP - Car Parks	Noise levels are between: Living Rooms: 35-40 dBL_{Aeq,16hours} Kitchens, Dining Rooms, and Studies: 40-45 dBL_{Aeq,16hours} Bedrooms Rooms: 35-40 dBL_{Aeq,16hours} 30-35dB L_{Aeq,8hr} L_{AFmax,2min} noise levels do not exceed: 55dB L_{AFmax} based on 10th highest L_{AFmax,2min} sample) External Amenity: 55-60 dBL_{Aeq,16hours}	Justification for Effect Level: Exceed threshold guidelines in Table 4 of BS8233:2014 and World Health Organisation (1999) Guidelines on Community Noise by no greater than 5dB to achieve <u>reasonable internal conditions</u> as defined by Note 7 to Table 1 in BS8233:2014 Action Required: Mitigate and reduce to a minimum the exceedance over the threshold
	<u>Change in Noise Level (IEMA 2014)</u> Change in noise levels for the following noise sources: - AGP - Car Parks	Increase in ambient L_{Aeq,T} due to contribution from proposed development of 5.0dB - ≤9.9dB.	Justification for Effect Level: Within the 'Moderate' effect classification range in Table 7.12 in IEMA 2014 guidance Guidelines for Environmental Noise Impact Assessment Action Required: Additional mitigation required to achieve effect of LOAEL or less.
Significant Observed Adverse Effect Level (SOAEL) – Significant Observed Adverse Effect	<u>Break-in Assessment (WHO 1999, BS8233 2014 and AD:O 2021) and External Amenity (WHO 1999)</u> Absolute internal noise criteria for the following noise sources with windows open: - AGP - Car Parks	Noise levels are between: Living Rooms: 40-45 dBL_{Aeq,16hours} Kitchens, Dining Rooms, and Studies: 45-50 dBL_{Aeq,16hours} Bedrooms Rooms: 40-45 dBL_{Aeq,16hours} 35-40dB L_{Aeq,8hr}	Justification for Effect Level: Exceeds BS8233:2014 L_{Aeq,T} reasonable criteria by 5dB or exceeds L_{AFmax,2min} (10th highest sample) Action Required: Additional mitigation required to achieve effect of LOAEL or less.

Table 5: Noise Level Criteria and Actions

Effect Level	Assessment Type and Noise Sources	Noise Level Criteria	Justification for Effect Level-Action Required
		>55dB $L_{AFmax,2min}$ based on 10th highest $L_{AFmax,2min}$ sample) External Amenity: 60-65 dBL_{Aeq,16hours}	
	<u>Change in Noise Level (IEMA 2014)</u> Change in noise levels for the following noise sources: - AGP - Car Parks	Increase in ambient $L_{Aeq,T}$ due to contribution from proposed development of ≥ 10dB.	Justification for Effect Level: Within the 'Very Substantial' effect classification range in Table 7.12 in IEMA 2014 guidance Guidelines for Environmental Noise Impact Assessment Action Required: Additional mitigation required to achieve effect of LOAEL or less.

5 DESCRIPTION OF BASELINE

5.1 Site Overview

5.1.1 The area surrounding the development has been reviewed to identify the nearest sensitive receptors that might be subject to noise from the proposed development.

5.2 Existing Noise Sensitive Receptors

5.2.1 The following ESRs have been considered as those most likely to be affected by noise from the proposed development; they are shown in **Table 6** below and shown in **Figure 2**.

Table 6: Existing Sensitive Receptor Locations	
Receptor	Description
ESR1- ESR11	Properties on Dunacre Way to the North of Grace Park
ESR12 – ESR15	Properties on Beechwood Avenue to the South of Grace Park

Figure 2: Existing Sensitive Receptors



5.2.2 Receptors other than those which are detailed in **Table 6** could be affected by noise from the proposed development, however any impacts would be equal to, or less than those included in this assessment.

5.3 Baseline Conditions

5.3.1 Between the 15th and 25th November 2024, WA carried out a noise survey at the proposed development site. Noise measurements were undertaken at four monitoring locations. Two of which (LT1 and LT2) which are representative of existing residential receptors and activity from the use of existing 11v11 AGP at Halewood Leisure Centre.

5.3.2 The noise monitoring locations are presented in **Figure 3**.

5.3.3 A-weighted¹ L_{eq} ² L_{90} ³ and maximum noise levels were measured to comply with the requirements of BS 8233. Additionally, A-weighted L_{10} ⁴ noise levels sound pressure levels, were also measured. The measured noise levels are set out in full in **Appendix B**.

5.3.4 The details of the noise survey have been provided in **Table 7**.

Table 7: Details of Noise Survey			
Monitoring Location	Start Date & Time	End Date & Time	Co-ordinates (EPSG:27700)
LT1	19/11/2024 - 1545	25/11/2024 - 1430	344783,385308
LT2	19/11/2024 - 1515	25/11/2024 - 1415	344543,385227
LT3	15/11/2024 - 1430	19/11/2024 - 1015	345331,385270
LT4	15/11/2024 - 1430	19/11/2024 - 1015	345313,385207

5.3.5 The sound level meters were calibrated to a reference level of 94 dB at 1 kHz both before, and on completion of, the noise survey. No drift in the calibration over 0.5 dB during the survey was noted.

¹ A' Weighting An electronic filter in a sound level meter which mimics the human ear's response to sounds at different frequencies under defined conditions

² L_{eq} Equivalent continuous noise level; the steady sound pressure which contains an equivalent quantity of sound energy as the time-varying sound pressure levels.

³ L_{90} The noise level which is exceeded for 90% of the measurement period.

⁴ L_{10} The noise level which is exceeded for 10% of the measurement period.

Figure 3: Noise Monitoring Locations



5.3.6 A summary of the sound level data measured at LT1 and LT2 is presented in **Table 8** and **Table 9**, respectively. The data is representative of the existing noise sensitive receptors.

Table 8: Summary of measured sound levels at LT1

	Background Sound Level, dB L _{A90,T}		Residual Sound Level, dB L _{Aeq,T}		Maximum Sound Level, dB L _{AFmax}	
	Day	Night	Day	Night	Day	Night
Summary of weekday measured sound levels at LT1						
Range	33 - 52	30 - 53	39 - 55	37 - 54	49 - 72	44 - 66
25th %ile	42	37	46	41	55	50
Median	44	40	48	44	58	54
75th %ile	47	43	50	47	61	57
Arithmetic Avg	44	40	48	44	58	54
Log Avg	-	-	49	46	-	-
Summary of weekend measured sound levels at LT1						
Range	43 - 51	38 - 49	47 - 67	41 - 54	54 - 96	47 - 63
25th %ile	46	40	49	44	57	52
Median	47	41	50	45	59	54
75th %ile	48	43	51	47	62	57
Arithmetic Avg	47	42	50	46	60	55
Log Avg	-	-	52	47	-	-

Table 9: Summary of measured sound levels at LT2

	Background Sound Level, dB L _{A90,T}		Residual Sound Level, dB L _{Aeq,T}		Maximum Sound Level, dB L _{AFmax}	
	Day	Night	Day	Night	Day	Night
Summary of weekday measured sound levels at LT2						
Range	37 - 51	32 - 50	41 - 56	35 - 57	48 - 75	42 - 71
25th %ile	42	35	46	39	57	49
Median	44	37	48	41	60	51
75th %ile	45	41	50	47	64	58
Arithmetic Avg	44	38	48	43	60	54
Log Avg	-	-	49	47	-	-
Summary of weekend measured sound levels at LT2						
Range	39 - 49	36 - 50	44 - 59	40 - 55	50 - 81	47 - 65
25th %ile	43	38	46	44	54	54
Median	44	40	48	46	57	58
75th %ile	45	41	49	47	61	61
Arithmetic Avg	44	40	48	46	58	57
Log Avg	-	-	49	48	-	-

5.3.7 Observations and detailed notes were made of the significant noise sources which contribute to each of the measured levels. The observations identified the following:

Road Traffic Noise: Road traffic noise from Wood Rd and Leather's Ln were dominant noise sources at LT1 and LT2.

Railway Traffic Noise: Railway pass by events were audible at LT1 and LT2 from the railway line from the north.

Other: wind through trees and quiet birdsong audible at all locations.

5.3.8 A summary of the sound level data measured at LT3 and LT4 is presented in **Table 10** and **Table 11** respectively. The measurements are representative of noise associated with football matches being played on the Halewood Leisure Centre AGP.

Table 10: Summary of measured sound levels at LT3						
	Background Sound Level, dB LA90,T		Residual Sound Level, dB LAeq,T		Maximum Sound Level, dB LAfmax	
	Day	Night	Day	Night	Day	Night
Range	40 - 60	33 - 53	46 - 76	36 - 56	56 - 97	48 - 69
25th %ile	44	34	50	40	63	55
Median	49	37	54	43	66	57
75th %ile	53	39	58	46	78	62
Arithmetic Avg	49	38	56	43	71	58
Log Avg	-	-	63	47	-	-

Table 11: Summary of measured sound levels at LT4						
	Background Sound Level, dB LA90,T		Residual Sound Level, dB LAeq,T		Maximum Sound Level, dB LAfmax	
	Day	Night	Day	Night	Day	Night
Range	35 - 64	29 - 54	43 - 75	32 - 56	54 - 98	46 - 66
25th %ile	44	31	51	37	64	52
Median	50	39	55	43	72	55
75th %ile	55	42	64	46	85	59
Arithmetic Avg	50	38	57	42	74	55
Log Avg	-	-	64	46	-	-

5.4 Determination of Representative Sound Levels

AGP Noise

- 5.4.1 The worst-case dB $L_{Aeq,1hour}$ level used for the assessment is 69 dB(A) and has been measured at LT3. This noise level corresponds to an hour period during which a football match took place on Sunday 17th November 2024.
- 5.4.2 The corresponding maximum noise level for the same period is 94dB L_{AFmax} .
- 5.4.3 These levels have been used to inform a computer noise model by calibrating an area source to the measured AGP noise levels. For the maximum noise level SoundPLAN calculates the noise level from a worst-case single point within the dimensions of the area source.

Ambient noise at receptors

- 5.4.4 For daytime periods, the average measured dB $L_{Aeq,16\ hour}$ at LT1 and LT2 have been used.
- 5.4.5 For LT1, the representative weekday dB $L_{Aeq,16hour}$ level used for the assessment is 49 dB. For LT1, the representative weekend dB $L_{Aeq,16hour}$ level used for the assessment is 52 dB.
- 5.4.6 For LT2, the representative weekday and weekend dB $L_{Aeq,16hour}$ level used for the assessment is 49 dB.
- 5.4.7 These levels have been used as representative ambient levels for nearby ESRs.

6 ASSUMPTIONS, LIMITATIONS AND UNCERTAINTY

6.1.1 The assessment is affected by the following assumptions and limitations.

6.2 Assumptions

6.2.1 AGP source measurements were taken during a football match on the nearby Halewood Leisure Centre AGP pitch for a duration of one hour. The proposed Grace Park AGP was calibrated using these measurements.

6.2.2 All assessments assume a daytime hour period when the AGP is in use with a 100% on-time.

6.2.3 Both the full size AGP and the smaller 5 v 5 court are assumed to be operational with the same sound power level applied. This represents the worst-case as it is likely that the 5 v 5 court would have a lower sound power level in reality due to the reduced number of players associated with the 5 v 5 pitches and expected lack of crowds watching the games.

6.3 Uncertainty

6.3.1 To reduce the level of uncertainty within the assessment, the following steps have been taken:

- Measurements were undertaken in accordance with BS 7445-1:2003 *Description and measurement of environmental noise. Guide to quantities and procedures*¹, the microphone was mounted vertically on a tripod 1.5m above the ground, unless otherwise stated. The monitoring location was more than 3.5 metres from any other reflecting surfaces.
- The baseline noise measurements were undertaken during suitable weather conditions, during the proposed operational hours.
- Noise measurements were made using a Class 1, integrating sound level meter.
- The sound level meter was calibrated prior to and following the noise survey, no significant drift in calibration was recorded.

¹ British Standards Institution (2003). *BS 7445-1:2003 Description and measurement of environmental noise. Guide to quantities and procedures*. BSI, London.

7 NOISE MODELLING

7.1 Methodology

7.1.1 To predict specific sound levels at the nearest noise sensitive receptors a noise model has been produced using SoundPLAN 9.1, a software package which implements the prediction methodology contained within ISO 9613-2:2024 'Attenuation of sound during propagation outdoors'.

7.1.2 SoundPLAN modelling software utilises publicly available topography data and digital terrain mapping to generate a 3D environmental model. The model implements the following factors to predict noise propagation:

- Sound source location;
- Relative distances between sound sources/receivers;
- Location and dimensions of object barriers including man-made or natural;
- Ground contours, determining the relative ground heights; and
- Ground absorption effects due to soft/hard ground.
- Ground absorption areas entered for the site and surrounding area (0= hard ground) and for the surrounding fields (1= soft ground).
- The ground absorption factor has been set to $G=0.6$ across the development site and surrounding area.
- Orders of reflections has been set to 3

7.1.3 Existing buildings surrounding the site have been modelled at a height of 8m height for two storey residential properties.

7.1.4 Receptor positions have been modelled at 1m from the building's façade at a height of 1.5 m for ground floor and 4 m for first floor.

7.2 Model Noise Source Inputs

7.2.1 Information regarding noise emissions from site operations have been determined using source noise measurements undertaken by WA.

External Noise Sources

7.2.2 The measured data for a worst-case hour of a football match is presented in **Table 12**.

Table 12: Sound Power Levels used in Model

Period	Octave Band Sound Power Level Hz, dB					
	63	125	250	500	1000	2000
Artificial Grass Pitch based on measurement on Sunday 17-Nov-24 between 10:30-11:30	93	94	97	106	104	97
Car Park – inclusive of car movements, engine start up and doors/boots opening and closing	104	106	91	90	87	86

7.2.3 For maximum noise levels the area source has been calibrated to produce a maximum noise level of 94dB L_{AFmax} from a worst-case single point at measurement position LT5. This corresponds to a maximum sound power level of 106dB L_{WA} .

8 NOISE IMPACT ASSESSMENT

8.1.1 The impact assessment undertaken which include the following

- External change in noise level assessment
- Internal break-in assessment
- External amenity area assessment

8.1.2 The impact assessment has been undertaken without the benefit of an acoustic barrier to establish a worst-case assessment and to enable a comparison of a mitigated option. It should be noted that the proposed site plan does include for an acoustic fence, but the height is not confirmed pending the results of this study.

8.2 External Change in Noise Level Assessment

8.2.1 An assessment of the change in the ambient noise level has been undertaken for weekday (Mon-Fri) and weekend periods (Sat & Sun) and compared to the assessment criteria in **Table 5** above.

8.2.2 **Table 13** and **Table 14** present the change in noise level during weekday and weekend periods.

Table 13: Change in External Noise Level during Weekday Periods (Mon-Fri)						
Receptor	Representative Monitoring Location	Measured dB LAeq,16hr	Predicted dB LAeq,1hr	Cumulative dB LAeq,1hr	Difference dB LAeq,T	Effect Level
ESR1	LT1	49	54	55	6	LOAEL
ESR2	LT1	49	54	55	6	LOAEL
ESR3	LT1	49	52	54	5	LOAEL
ESR4	LT1	49	51	53	4	NOAEL
ESR5	LT1	49	53	54	5	LOAEL
ESR6	LT1	49	51	53	4	NOAEL
ESR7	LT1	49	54	55	6	LOAEL
ESR8	LT1	49	54	55	6	LOAEL
ESR9	LT1	49	54	55	6	LOAEL
ESR10	LT1	49	56	57	8	LOAEL
ESR11	LT1	49	57	58	9	LOAEL
ESR12	LT1	49	51	53	4	NOAEL
ESR13	LT1	49	50	52	3	NOAEL
ESR14	LT1	49	48	52	3	NOAEL
ESR15	LT1	49	49	52	3	NOAEL

8.2.3 The assessment tables above show that during the weekday for ESRs to the north of the proposed development the change in noise level is up to +9dB, which would equate to an effect level of LOAEL. Therefore, additional mitigation is recommended to reduce the noise impact on the ESRs to the north.

Table 14: Change in External Noise Level during Weekend Periods (Sat & Sun)						
Receptor	Representative Monitoring Location	Measured dB LAeq,16hr	Predicted dB LAeq,16hr	Cumulative dB LAeq,16hr	Difference dB LAeq,T	Effect Level
ESR1	LT1	52	54	56	4	NOAEL
ESR2	LT1	52	54	56	4	NOAEL
ESR3	LT1	52	52	55	3	NOAEL
ESR4	LT1	52	51	55	3	NOAEL
ESR5	LT1	52	53	55	3	NOAEL
ESR6	LT1	52	51	55	3	NOAEL
ESR7	LT1	52	54	56	4	NOAEL
ESR8	LT1	52	54	56	4	NOAEL
ESR9	LT1	52	54	56	4	NOAEL
ESR10	LT1	52	56	58	6	LOAEL
ESR11	LT1	52	57	58	6	LOAEL
ESR12	LT1	52	51	55	3	NOAEL
ESR13	LT1	52	50	54	2	NOEL
ESR14	LT1	52	48	54	2	NOEL
ESR15	LT1	52	49	54	2	NOEL

8.2.4 The assessment table above shows that during the weekend for ESRs to the north of the proposed development the change in noise level is up to +6dB, which would equate to an effect level of LOAEL. Therefore, additional mitigation is recommended to reduce the noise impact on the ESRs to the north.

8.3 Noise Intrusion Assessment

8.3.1 Internal noise levels, at nearby sensitive receptors from all sources of potential noise associated with the proposed development have been assessed both with windows open, where a reduction from a partially open window of 15 dB has been used, and with windows closed where an assumption of standard double glazing with a sound reduction of 30 dB has been used.

8.3.2 **Table 15** presents the results for the daytime $L_{Aeq,1hr}$ noise levels.

Table 15: Daytime Noise Intrusion Levels $L_{Aeq,1hr}$					
Receptor	Predicted External Specific Sound Level (dB)	Predicted Internal Noise Level (windows open) dB	Predicted Internal Noise Level (windows closed) dB	Criteria L_{Aeq} (window open scenario) dB	Effect Level (Window Open Scenario)
ESR1	54.1	39.1	24.1	35.0	LOAEL
ESR2	54.2	39.2	24.2	35.0	LOAEL
ESR3	52.3	37.3	22.3	35.0	LOAEL
ESR4	50.8	35.8	20.8	35.0	LOAEL
ESR5	52.7	37.7	22.7	35.0	LOAEL
ESR6	51.4	36.4	21.4	35.0	LOAEL
ESR7	54.0	39.0	24.0	35.0	LOAEL
ESR8	54.3	39.3	24.3	35.0	LOAEL
ESR9	54.1	39.1	24.1	35.0	LOAEL
ESR10	56.1	41.1	26.1	35.0	SOAEL
ESR11	56.8	41.8	26.8	35.0	SOAEL
ESR12	51.1	36.1	21.1	35.0	LOAEL
ESR13	49.7	34.7	19.7	35.0	NOEL
ESR14	48.3	33.3	18.3	35.0	NOEL
ESR15	48.8	33.8	18.8	35.0	NOEL

8.3.3 The assessment shows that the predicted internal noise levels during a worst-case hour during a football match are likely to be above the daytime internal noise criteria with an open window scenario at most of the ESRs. ESRs are likely to fall within the LOAEL effect level or below, except for ESR10 and ESR11 which will fall in the SOAEL effect level.

8.3.4 Maximum noise levels have been assessed based on players and spectators shouting during the football match. As there is no specific national guidance for maximum noise level break-in during the daytime or evening period, the maximum noise levels have been compared with the 55 dB L_{AFmax} night-time internal noise levels specified in AD-O.

8.3.5 **Table 16** presents the results for the daytime L_{AFmax} noise levels.

Table 16: Daytime Noise Intrusion Levels L_{AFmax}					
Receptor	Predicted External Specific Sound Level (dB)	Predicted Internal Noise Level (windows open) dB	Predicted Internal Noise Level (windows closed) dB	Criteria L_{Aeq} (window open scenario) dB	Effect Level (Window Open Scenario)
ESR1	59.6	44.6	29.6	55.0	NOEL
ESR2	59.1	44.1	29.1	55.0	NOEL
ESR3	58.3	43.3	28.3	55.0	NOEL
ESR4	54.6	39.6	24.6	55.0	NOEL
ESR5	55.4	40.4	25.4	55.0	NOEL
ESR6	56.0	41.0	26.0	55.0	NOEL
ESR7	57.3	42.3	27.3	55.0	NOEL
ESR8	58.1	43.1	28.1	55.0	NOEL
ESR9	57.5	42.5	27.5	55.0	NOEL
ESR10	58.4	43.4	28.4	55.0	NOEL
ESR11	58.0	43.0	28.0	55.0	NOEL
ESR12	50.2	35.2	20.2	55.0	NOEL
ESR13	48.6	33.6	18.6	55.0	NOEL
ESR14	48.1	33.1	18.1	55.0	NOEL
ESR15	49.9	34.9	19.9	55.0	NOEL

8.3.6 The assessment shown in Table above shows that the predicted internal noise levels resulting from an instantaneous maximum noise event during a football match at the proposed AGP is likely to fall below the night-time maximum noise level guidance specified in the AD-O guidance at all assessed ESRs. All ESRs will fall within the NOEL effect level in accordance with the NPPF.

8.3.7 Furthermore, existing maximum noise levels measured at LT1 and LT2 are 96dB and 85dB L_{AFmax} respectively, therefore, the predicted maximum noise levels are considerably below the existing measured maximum noise levels.

8.4 External Amenity Area Assessment

8.4.1 An assessment of external noise levels from the cumulative use of the AGP and car parks has been undertaken. **Table 17** presents the results of the assessment.

8.4.2 The predicted external noise levels have been compared to the 55dB noise criteria specified within the SE-AGP and WHO guidance.

Table 17: External Amenity Assessment (Weekday and Weekend)

Receptor	Predicted Sound Level $L_{Aeq,T}$	Effect Level
ESR1	54.1	NOAEL
ESR2	54.2	NOAEL
ESR3	52.3	NOAEL
ESR4	50.8	NOAEL
ESR5	52.2	NOAEL
ESR6	51.4	NOAEL
ESR7	54.0	NOAEL
ESR8	54.3	NOAEL
ESR9	54.1	NOAEL
ESR10	56.1	LOAEL
ESR11	56.8	LOAEL
ESR12	51.1	NOAEL
ESR13	49.7	NOEL
ESR14	48.3	NOEL
ESR15	48.8	NOEL

8.4.3 Noise levels are predicted to exceed the assessment criteria at some of the assessed ESRs and are likely to fall within the LOAEL category in accordance with the NPPF.

8.5 Summary of Noise Assessments

8.5.1 A summary of the impact assessment is presented in **Table 18**. Based on the summary additional mitigation is required for receptors on Dunacre Way to the North of Grace Park.

Table 18: Summary Impact Assessment Conclusion

Receptor	Change In Noise Level Assessment	Internal Break-in Assessment (Windows Open)		External Amenity Area Assessment	Overall	Additional Mitigation Needed
		L _{Aeq,1hr}	L _{AFmax}			
ESR1	LOAEL	LOAEL	NOEL	NOAEL	LOAEL	Yes
ESR2	LOAEL	LOAEL	NOEL	NOAEL	LOAEL	Yes
ESR3	LOAEL	LOAEL	NOEL	NOAEL	LOAEL	Yes
ESR4	NOAEL	LOAEL	NOEL	NOAEL	LOAEL	Yes
ESR5	LOAEL	LOAEL	NOEL	NOAEL	LOAEL	Yes
ESR6	NOAEL	LOAEL	NOEL	NOAEL	LOAEL	Yes
ESR7	LOAEL	LOAEL	NOEL	NOAEL	LOAEL	Yes
ESR8	LOAEL	LOAEL	NOEL	NOAEL	LOAEL	Yes
ESR9	LOAEL	LOAEL	NOEL	NOAEL	LOAEL	Yes
ESR10	LOAEL	SOAEL	NOEL	LOAEL	LOAEL	Yes
ESR11	LOAEL	SOAEL	NOEL	LOAEL	LOAEL	Yes
ESR12	NOAEL	LOAEL	NOEL	NOAEL	LOAEL	Yes
ESR13	NOAEL	NOEL	NOEL	NOEL	NOEL	No
ESR14	NOAEL	NOEL	NOEL	NOEL	NOEL	No
ESR15	NOAEL	NOEL	NOEL	NOEL	NOEL	No

9 MITIGATION

- 9.1.1 Mitigation is recommended to control noise levels from the car park and AGP at receptors to the north of the proposed development.
- 9.1.2 The following section includes assessments of the effect of mitigation in the form of a 3.0m and 4.0m high acoustic fencing to surround the northern and easter sides of the AGP at Grace Park.
- 9.1.3 All barriers should be constructed of suitable material to achieve a surface mass of 10-15kg/m² and be either 3.0m or 4.0m above ground height across the entirety of the length.
- 9.1.4 An additional scenario has also been considered with the AGP located in a more central location within Grace Park. The results of the assessment are presented in the section below.

10 ASSESSMENT OF RESIDUAL EFFECTS

10.1.1 The residual effect with the recommended mitigation in place is presented below for each of the assessments undertaken to demonstrate the effectiveness of the mitigation.

10.2 3.0m High Acoustic Fence

External Change in Noise Level Assessment – Including 3.0m Acoustic Fencing

10.2.1 **Table 19** and **Table 20** present the change in noise level during weekday and weekend periods. The noise contour plot is presented in **Drawing ST21181/002**.

Table 19: Change in External Noise Level during Weekday Periods (Mon-Fri) – Including 3.0m Acoustic Fencing						
Receptor	Representative Monitoring Location	Measured dB L _{Aeq,16hr}	Predicted dB L _{Aeq,1hr}	Cumulative dB L _{Aeq,1hr}	Difference dB L _{Aeq,T}	Effect Level
ESR1	LT1	49	51	53	4	NOAEL
ESR2	LT1	49	50	53	4	NOAEL
ESR3	LT1	49	48	52	3	NOAEL
ESR4	LT1	49	47	51	2	NOEL
ESR5	LT1	49	48	52	3	NOAEL
ESR6	LT1	49	47	51	2	NOEL
ESR7	LT1	49	48	52	3	NOAEL
ESR8	LT1	49	49	52	3	NOAEL
ESR9	LT1	49	49	52	3	NOAEL
ESR10	LT1	49	51	53	4	NOAEL
ESR11	LT1	49	52	54	5	LOAEL
ESR12	LT1	49	52	53	4	NOAEL
ESR13	LT1	49	51	53	4	NOAEL
ESR14	LT1	49	49	52	3	NOAEL
ESR15	LT1	49	50	52	3	NOAEL

10.2.2 The assessment tables above show that during the weekday the change in noise level is less than +5dB at all ESRs except for ESR11. Therefore, the effect level is likely to fall within the NOAEL at all ESRs except for ESR11 which would fall within the LOAEL in accordance with the NPPF.

Table 20: Change in External Noise Level during Weekend Periods (Sat & Sun) – Including 3.0m High Acoustic Fencing

Receptor	Representative Monitoring Location	Measured dB L _{Aeq,16hr}	Predicted dB L _{Aeq,16hr}	Cumulative dB L _{Aeq,16hr}	Difference dB L _{Aeq,T}	Effect Level
ESR1	LT1	52	51	54	2	NOEL
ESR2	LT1	52	50	54	2	NOEL
ESR3	LT1	52	48	53	1	NOEL
ESR4	LT1	52	47	53	1	NOEL
ESR5	LT1	52	48	54	2	NOEL
ESR6	LT1	52	47	53	1	NOEL
ESR7	LT1	52	48	54	2	NOEL
ESR8	LT1	52	49	54	2	NOEL
ESR9	LT1	52	49	54	2	NOEL
ESR10	LT1	52	51	55	3	NOAEL
ESR11	LT1	52	52	55	3	NOAEL
ESR12	LT1	52	52	55	3	NOAEL
ESR13	LT1	52	51	54	2	NOEL
ESR14	LT1	52	49	54	2	NOEL
ESR15	LT1	52	50	54	2	NOEL

10.2.3 The assessment tables above show that during the weekend the change in noise level is less than +5dB at all ESRs. Therefore, the effect level is likely to be no more than NOAEL at all ESRs in accordance with the NPPF.

BS 8233:2014 Noise Intrusion Assessment – Including 3.0m high Acoustic Fencing

10.2.4 **Table 21** presents the results for the daytime L_{Aeq,1hr} noise levels.

Table 21: Daytime Noise Intrusion Levels L_{Aeq,1hr} – Including 3.0m high Acoustic Fencing

Receptor	Predicted External Specific Sound Level (dB)	Predicted Internal Noise Level (windows open) dB	Predicted Internal Noise Level (windows closed) dB	Criteria L _{Aeq} (window open scenario) dB	Effect Level (Window Open Scenario)
ESR1	50.5	35.5	20.5	35.0	LOAEL
ESR2	50.2	35.2	20.2	35.0	LOAEL
ESR3	47.8	32.8	17.8	35.0	NOEL
ESR4	46.7	31.7	16.7	35.0	NOEL
ESR5	48.2	33.2	18.2	35.0	NOEL
ESR6	46.6	31.6	16.6	35.0	NOEL
ESR7	48.4	33.4	18.4	35.0	NOEL
ESR8	48.5	33.5	18.5	35.0	NOEL
ESR9	49.4	34.4	19.4	35.0	NOEL
ESR10	51.3	36.3	21.3	35.0	LOAEL

Table 21: Daytime Noise Intrusion Levels $L_{Aeq,1hr}$ – Including 3.0m high Acoustic Fencing

Receptor	Predicted External Specific Sound Level (dB)	Predicted Internal Noise Level (windows open) dB	Predicted Internal Noise Level (windows closed) dB	Criteria L_{Aeq} (window open scenario) dB	Effect Level (Window Open Scenario)
ESR11	51.8	36.8	21.8	35.0	LOAEL
ESR12	51.5	36.5	21.5	35.0	LOAEL
ESR13	50.5	35.5	20.5	35.0	LOAEL
ESR14	48.9	33.9	18.9	35.0	NOEL
ESR15	49.6	34.6	19.6	35.0	NOEL

10.2.5 The assessment shows that the predicted internal noise levels during a worst-case hour during a football match are likely to be below the daytime internal noise criteria with an open window scenario at most of the ESRs. All ESRs are likely to fall within the LOAEL effect or below.

10.2.6 **Table 22** presents the results for the daytime L_{AFmax} noise levels.

Table 22: Daytime Noise Intrusion Levels L_{AFmax} – Including 3.0m High Acoustic Fencing

Receptor	Predicted External Specific Sound Level (dB)	Predicted Internal Noise Level (windows open) dB	Predicted Internal Noise Level (windows closed) dB	Criteria L_{Aeq} (window open scenario) dB	Effect Level (Window Open Scenario)
ESR1	58.0	43.0	28.0	55.0	NOEL
ESR2	53.3	38.3	23.3	55.0	NOEL
ESR3	52.3	37.3	22.3	55.0	NOEL
ESR4	46.8	31.8	16.8	55.0	NOEL
ESR5	49.5	34.5	19.5	55.0	NOEL
ESR6	45.8	30.8	15.8	55.0	NOEL
ESR7	47.9	32.9	17.9	55.0	NOEL
ESR8	49.0	34.0	19.0	55.0	NOEL
ESR9	50.5	35.5	20.5	55.0	NOEL
ESR10	52.5	37.5	22.5	55.0	NOEL
ESR11	52.5	37.5	22.5	55.0	NOEL
ESR12	50.4	35.4	20.4	55.0	NOEL
ESR13	49.4	34.4	19.4	55.0	NOEL
ESR14	48.1	33.1	18.1	55.0	NOEL
ESR15	49.9	34.9	19.9	55.0	NOEL

10.2.7 The assessment shown in Table above shows that the predicted internal noise levels resulting from an instantaneous maximum noise event during a football match at the proposed AGP is likely to fall below the night-time maximum noise level guidance specified in the AD-O guidance at all assessed ESRs. All ESRs will fall within the NOEL effect level in accordance with the NPPF.

10.2.8 Furthermore, existing maximum noise levels measured at LT1 and LT2 are 96dB and 85dB $L_{A_{Fmax}}$ respectively, therefore, the predicted maximum noise levels are considerably below the existing measured maximum noise levels.

External Amenity Area Assessment – Including 3.0m high Acoustic Fencing

10.2.9 An assessment of external noise levels from the cumulative use of the AGP and car parks has been undertaken. **Table 23** presents the results of the assessment.

10.2.10 The predicted external noise levels have been compared to the 55dB noise criteria specified within the SE-AGP and WHO guidance.

Table 23: External Amenity Assessment (Weekday and Weekend) – Including 3.0m High Acoustic Fencing		
Receptor	Predicted Sound Level $L_{Aeq,T}$	Effect Level
ESR1	50.5	NOAEL
ESR2	50.2	NOAEL
ESR3	47.8	NOEL
ESR4	46.7	NOEL
ESR5	48.2	NOEL
ESR6	46.6	NOEL
ESR7	48.4	NOEL
ESR8	48.5	NOEL
ESR9	49.4	NOEL
ESR10	51.3	NOAEL
ESR11	51.8	NOAEL
ESR12	51.5	NOAEL
ESR13	50.5	NOAEL
ESR14	48.9	NOEL
ESR15	49.6	NOEL

10.2.11 Noise levels are predicted to be below the assessment criteria at all of the assessed ESRs and are likely to fall within the NOAEL category in accordance with the NPPF.

Summary of Noise Assessments – Including 3.0m High Acoustic Fencing

10.2.12 A summary of the impact assessment including a 3.0m high acoustic fence is presented in **Table 24**.

Table 24: Summary Impact Assessment Conclusion – Including 3.0m High Acoustic Fencing

Receptor	Change In Noise Level Assessment	Internal Break-in Assessment (Windows Open)		External Amenity Area Assessment	Overall	Further Mitigation Needed
		L _{Aeq,1hr}	L _{AFmax}			
ESR1	NOAEL	LOAEL	NOEL	NOAEL	NOAEL	No
ESR2	NOAEL	LOAEL	NOEL	NOAEL	NOAEL	No
ESR3	NOAEL	NOEL	NOEL	NOEL	NOEL	No
ESR4	NOEL	NOEL	NOEL	NOEL	NOEL	No
ESR5	NOAEL	NOEL	NOEL	NOEL	NOEL	No
ESR6	NOEL	NOEL	NOEL	NOEL	NOEL	No
ESR7	NOAEL	NOEL	NOEL	NOEL	NOEL	No
ESR8	NOAEL	NOEL	NOEL	NOEL	NOEL	No
ESR9	NOAEL	NOEL	NOEL	NOEL	NOEL	No
ESR10	NOAEL	LOAEL	NOEL	NOAEL	NOAEL	No
ESR11	LOAEL	LOAEL	NOEL	NOAEL	LOAEL	No
ESR12	NOAEL	LOAEL	NOEL	NOAEL	NOAEL	No
ESR13	NOAEL	LOAEL	NOEL	NOAEL	NOAEL	No
ESR14	NOAEL	NOEL	NOEL	NOEL	NOEL	No
ESR15	NOAEL	NOEL	NOEL	NOEL	NOEL	No

10.3 4.0m High Acoustic Fence

External Change in Noise Level Assessment – Including 4.0m Acoustic Fencing

10.3.1 **Table 25** and **Table 26** present the change in noise level during weekday and weekend periods. The noise contour plot is presented in **Drawing ST21181/003**.

Table 25: Change in External Noise Level during Weekday Periods (Mon-Fri) – Including 4.0m Acoustic Fencing

Receptor	Representative Monitoring Location	Measured dB L _{Aeq,16hr}	Predicted dB L _{Aeq,1hr}	Cumulative dB L _{Aeq,1hr}	Difference dB L _{Aeq,T}	Effect Level
ESR1	LT1	49	49	52	3	NOAEL
ESR2	LT1	49	49	52	3	NOAEL
ESR3	LT1	49	46	51	2	NOEL
ESR4	LT1	49	44	50	1	NOEL
ESR5	LT1	49	47	51	2	NOEL
ESR6	LT1	49	45	50	1	NOEL
ESR7	LT1	49	47	51	2	NOEL
ESR8	LT1	49	48	51	2	NOEL
ESR9	LT1	49	48	51	2	NOEL

Table 25: Change in External Noise Level during Weekday Periods (Mon-Fri) – Including 4.0m Acoustic Fencing

Receptor	Representative Monitoring Location	Measured dB L _{Aeq,16hr}	Predicted dB L _{Aeq,1hr}	Cumulative dB L _{Aeq,1hr}	Difference dB L _{Aeq,T}	Effect Level
ESR10	LT1	49	49	52	3	NOAEL
ESR11	LT1	49	51	53	4	NOAEL
ESR12	LT1	49	52	54	5	LOAEL
ESR13	LT1	49	51	53	4	NOAEL
ESR14	LT1	49	49	52	3	NOAEL
ESR15	LT1	49	50	53	4	NOAEL

10.3.2 The assessment tables above show that during the weekday the change in noise level is less than +5dB at all ESRs. Therefore, the effect level is likely to fall within the NOAEL at all ESRs except for ESR12 which would fall within the LOAEL in accordance with the NPPF.

Table 26: Change in External Noise Level during Weekend Periods (Sat & Sun) – Including 4.0m High Acoustic Fencing

Receptor	Representative Monitoring Location	Measured dB L _{Aeq,16hr}	Predicted dB L _{Aeq,16hr}	Cumulative dB L _{Aeq,16hr}	Difference dB L _{Aeq,T}	Effect Level
ESR1	LT1	52	49	54	2	NOEL
ESR2	LT1	52	49	54	2	NOEL
ESR3	LT1	52	46	53	1	NOEL
ESR4	LT1	52	44	53	1	NOEL
ESR5	LT1	52	47	53	1	NOEL
ESR6	LT1	52	45	53	1	NOEL
ESR7	LT1	52	47	53	1	NOEL
ESR8	LT1	52	48	53	1	NOEL
ESR9	LT1	52	48	53	1	NOEL
ESR10	LT1	52	49	54	2	NOEL
ESR11	LT1	52	51	54	2	NOEL
ESR12	LT1	52	52	55	3	NOAEL
ESR13	LT1	52	51	55	3	NOAEL
ESR14	LT1	52	49	54	2	NOEL
ESR15	LT1	52	50	54	2	NOEL

10.3.3 The assessment tables above show that during the weekend the change in noise level is less than +5dB at all ESRs. Therefore, the effect level is likely to be no more than NOAEL at all ESRs in accordance with the NPPF.

BS 8233:2014 Noise Intrusion Assessment – Including 4.0m high Acoustic Fencing

10.3.4 **Table 27** presents the results for the daytime $L_{Aeq,1hr}$ noise levels.

Table 27: Daytime Noise Intrusion Levels $L_{Aeq,1hr}$ – Including 4.0m high Acoustic Fencing					
Receptor	Predicted External Specific Sound Level (dB)	Predicted Internal Noise Level (windows open) dB	Predicted Internal Noise Level (windows closed) dB	Criteria L_{Aeq} (window open scenario) dB	Effect Level (Window Open Scenario)
ESR1	48.9	33.9	18.9	35.0	NOEL
ESR2	48.6	33.6	18.6	35.0	NOEL
ESR3	45.7	30.7	15.7	35.0	NOEL
ESR4	44.2	29.2	14.2	35.0	NOEL
ESR5	46.8	31.8	16.8	35.0	NOEL
ESR6	44.9	29.9	14.9	35.0	NOEL
ESR7	47.4	32.4	17.4	35.0	NOEL
ESR8	47.7	32.7	17.7	35.0	NOEL
ESR9	47.7	32.7	17.7	35.0	NOEL
ESR10	48.7	33.7	18.7	35.0	NOEL
ESR11	49.7	34.7	19.7	35.0	NOEL
ESR12	51.7	36.7	21.7	35.0	LOAEL
ESR13	51.0	36.0	21.0	35.0	LOAEL
ESR14	49.3	34.3	19.3	35.0	NOEL
ESR15	50.1	35.1	20.1	35.0	LOAEL

10.3.5 The assessment shows that the predicted internal noise levels during a worst-case hour during a football match are likely to be below the daytime internal noise criteria with an open window scenario at most of the ESRs. All ESRs are likely to fall within the LOAEL effect or below.

10.3.6 **Table 28** presents the results for the daytime L_{AFmax} noise levels.

Table 28: Daytime Noise Intrusion Levels L_{AFmax} – Including 4.0m High Acoustic Fencing					
Receptor	Predicted External Specific Sound Level (dB)	Predicted Internal Noise Level (windows open) dB	Predicted Internal Noise Level (windows closed) dB	Criteria L_{Aeq} (window open scenario) dB	Effect Level (Window Open Scenario)
ESR1	58.0	43.0	28.0	55.0	NOEL
ESR2	53.4	38.4	23.4	55.0	NOEL
ESR3	50.2	35.2	20.2	55.0	NOEL
ESR4	44.5	29.5	14.5	55.0	NOEL
ESR5	47.1	32.1	17.1	55.0	NOEL
ESR6	46.9	31.9	16.9	55.0	NOEL
ESR7	49.6	34.6	19.6	55.0	NOEL
ESR8	49.0	34.0	19.0	55.0	NOEL

Table 28: Daytime Noise Intrusion Levels L_{AFmax} – Including 4.0m High Acoustic Fencing					
Receptor	Predicted External Specific Sound Level (dB)	Predicted Internal Noise Level (windows open) dB	Predicted Internal Noise Level (windows closed) dB	Criteria L_{Aeq} (window open scenario) dB	Effect Level (Window Open Scenario)
ESR9	48.4	33.4	18.4	55.0	NOEL
ESR10	50.3	35.3	20.3	55.0	NOEL
ESR11	51.0	36.0	21.0	55.0	NOEL
ESR12	51.1	36.1	21.1	55.0	NOEL
ESR13	50.0	35.0	20.0	55.0	NOEL
ESR14	48.8	33.8	18.8	55.0	NOEL
ESR15	49.9	34.9	19.9	55.0	NOEL

10.3.7 The assessment shown in Table above shows that the predicted internal noise levels resulting from an instantaneous maximum noise event during a football match at the proposed AGP is likely to fall below the night-time maximum noise level guidance specified in the AD-O guidance at all assessed ESRs. All ESRs will fall within the NOEL effect level in accordance with the NPPF.

10.3.8 Furthermore, existing maximum noise levels measured at LT1 and LT2 are 96dB and 85dB L_{AFmax} respectively, therefore, the predicted maximum noise levels are considerably below the existing measured maximum noise levels.

External Amenity Area Assessment – Including 4.0m high Acoustic Fencing

10.3.9 An assessment of external noise levels from the cumulative use of the AGP and car parks has been undertaken. **Table 29** presents the results of the assessment.

10.3.10 The predicted external noise levels have been compared to the 55dB noise criteria specified within the SE-AGP and WHO guidance.

Table 29: External Amenity Assessment (Weekday and Weekend) – Including 4.0m High Acoustic Fencing		
Receptor	Predicted Sound Level $L_{Aeq,T}$	Effect Level
ESR1	48.9	NOEL
ESR2	48.6	NOEL
ESR3	45.7	NOEL
ESR4	44.2	NOEL
ESR5	46.8	NOEL
ESR6	44.9	NOEL
ESR7	47.4	NOEL
ESR8	47.7	NOEL

Table 29: External Amenity Assessment (Weekday and Weekend) – Including 4.0m High Acoustic Fencing

Receptor	Predicted Sound Level $L_{Aeq,T}$	Effect Level
ESR9	47.7	NOEL
ESR10	48.7	NOEL
ESR11	49.7	NOEL
ESR12	51.7	NOAEL
ESR13	51.0	NOAEL
ESR14	49.3	NOEL
ESR15	50.1	NOAEL

10.3.11 Noise levels are predicted to be below the assessment criteria at all of the assessed ESRs and are likely to fall within the NOAEL category in accordance with the NPPF.

Summary of Noise Assessments – Including 4.0m High Acoustic Fencing

10.3.12 A summary of the impact assessment including a 4.0m high acoustic fence is presented in **Table 30**.

Table 30: Summary Impact Assessment Conclusion – Including 4.0m High Acoustic Fencing

Receptor	Change In Noise Level Assessment	Internal Break-in Assessment (Windows Open)		External Amenity Area Assessment	Overall	Further Mitigation Needed
		$L_{Aeq,1hr}$	L_{AFmax}			
ESR1	NOAEL	NOEL	NOEL	NOEL	NOAEL	No
ESR2	NOAEL	NOEL	NOEL	NOEL	NOAEL	No
ESR3	NOEL	NOEL	NOEL	NOEL	NOEL	No
ESR4	NOEL	NOEL	NOEL	NOEL	NOEL	No
ESR5	NOEL	NOEL	NOEL	NOEL	NOEL	No
ESR6	NOEL	NOEL	NOEL	NOEL	NOEL	No
ESR7	NOEL	NOEL	NOEL	NOEL	NOEL	No
ESR8	NOEL	NOEL	NOEL	NOEL	NOEL	No
ESR9	NOEL	NOEL	NOEL	NOEL	NOEL	No
ESR10	NOAEL	NOEL	NOEL	NOEL	NOAEL	No
ESR11	NOAEL	NOEL	NOEL	NOEL	NOAEL	No
ESR12	LOAEL	LOAEL	NOEL	NOAEL	NOAEL	No
ESR13	NOAEL	LOAEL	NOEL	NOAEL	NOAEL	No
ESR14	NOAEL	NOEL	NOEL	NOEL	NOEL	No
ESR15	NOAEL	LOAEL	NOEL	NOAEL	NOEL	No

10.4 Alternative Location

10.4.1 As part of the site selection process an assessment of an alternative location for the AGP in the centre of Grace Park has been undertaken. The following sections present this assessment for information only to and it does form part of the proposed development being applied for.

External Change in Noise Level Assessment – Alternative Location

10.4.2 **Table 31** and

10.4.3 Table 32: Change in External Noise Level during Weekend Periods (Sat & Sun) – Alternative Location

10.4.4 present the change in noise level during weekday and weekend periods.

Table 31: Change in External Noise Level during Weekday Periods (Mon-Fri) – Alternative Location						
Receptor	Representative Monitoring Location	Measured dB LAeq,16hr	Predicted dB LAeq,1hr	Cumulative dB LAeq,1hr	Difference dB LAeq,T	Impact Threshold
ESR1	LT1	49	51	53	4	NOAEL
ESR2	LT1	49	49	52	3	NOAEL
ESR3	LT1	49	49	52	3	NOAEL
ESR4	LT1	49	48	52	3	NOAEL
ESR5	LT1	49	50	52	3	NOAEL
ESR6	LT1	49	47	51	2	NOEL
ESR7	LT1	49	50	53	4	NOAEL
ESR8	LT1	49	50	52	3	NOAEL
ESR9	LT1	49	50	53	4	NOAEL
ESR10	LT1	49	52	54	5	LOAEL
ESR11	LT1	49	55	56	7	LOAEL
ESR12	LT1	49	52	54	5	LOAEL
ESR13	LT1	49	52	54	5	LOAEL
ESR14	LT1	49	51	53	4	NOAEL
ESR15	LT1	49	50	53	4	NOAEL

10.4.5 The assessment tables above show that during the weekday the change in noise level is up to +7dB, which would equate to an effect level of LOAEL in accordance with the NPPF.

Table 32: Change in External Noise Level during Weekend Periods (Sat & Sun) – Alternative Location						
Receptor	Representative Monitoring Location	Measured dB L _{Aeq,16hr}	Predicted dB L _{Aeq,16hr}	Cumulative dB L _{Aeq,16hr}	Difference dB L _{Aeq,T}	Impact Threshold
ESR1	LT1	52	51	55	3	NOAEL
ESR2	LT1	52	49	54	2	NOEL
ESR3	LT1	52	49	54	2	NOEL
ESR4	LT1	52	48	54	2	NOEL
ESR5	LT1	52	50	54	2	NOEL
ESR6	LT1	52	47	53	1	NOEL
ESR7	LT1	52	50	54	2	NOEL
ESR8	LT1	52	50	54	2	NOEL
ESR9	LT1	52	50	54	2	NOEL
ESR10	LT1	52	52	55	3	NOAEL
ESR11	LT1	52	55	57	5	LOAEL
ESR12	LT1	52	52	55	3	NOAEL
ESR13	LT1	52	52	55	3	NOAEL
ESR14	LT1	52	51	55	3	NOAEL
ESR15	LT1	52	50	54	2	NOEL

10.4.6 The assessment tables above show that during the weekend the change in noise level is up to +5dB, which would equate to an effect level of LOAEL in accordance with the NPPF.

Noise Intrusion Assessment – Alternative Location

10.4.7 Table 33 presents the results for the daytime L_{Aeq,1hr} noise levels.

Table 33: Daytime Noise Intrusion Levels L _{Aeq,1hr} – Alternative Location					
Receptor	Predicted External Specific Sound Level (dB)	Predicted Internal Noise Level (windows open) dB	Predicted Internal Noise Level (windows closed) dB	Criteria L _{Aeq} (window open scenario) dB	Impact Level (Window Open Scenario)
ESR1	51.3	36.3	21.3	35.0	LOAEL
ESR2	49.4	34.4	19.4	35.0	NOEL
ESR3	48.7	33.7	18.7	35.0	NOEL
ESR4	48.0	33.0	18.0	35.0	NOEL
ESR5	49.7	34.7	19.7	35.0	NOEL
ESR6	46.9	31.9	16.9	35.0	NOEL
ESR7	50.3	35.3	20.3	35.0	LOAEL
ESR8	49.6	34.6	19.6	35.0	NOEL
ESR9	50.2	35.2	20.2	35.0	LOAEL
ESR10	52.4	37.4	22.4	35.0	LOAEL
ESR11	54.6	39.6	24.6	35.0	LOAEL

Table 33: Daytime Noise Intrusion Levels $L_{Aeq,1hr}$ – Alternative Location

Receptor	Predicted External Specific Sound Level (dB)	Predicted Internal Noise Level (windows open) dB	Predicted Internal Noise Level (windows closed) dB	Criteria L_{Aeq} (window open scenario) dB	Impact Level (Window Open Scenario)
ESR12	51.8	36.8	21.8	35.0	LOAEL
ESR13	51.6	36.6	21.6	35.0	LOAEL
ESR14	51.0	36.0	21.0	35.0	LOAEL
ESR15	50.2	35.2	20.2	35.0	LOAEL

10.4.8 The assessment shows that the predicted internal noise levels during a worst-case hour during a football match are likely to exceed the daytime internal noise criteria with an open window scenario at the majority of the ESRs. All ESRs are likely to fall within the LOAEL effect or below.

10.4.9 **Table 34** presents the results for the daytime L_{AFmax} noise levels.

Table 34: Daytime Noise Intrusion Levels L_{AFmax} – Alternative Location

Receptor	Predicted External Specific Sound Level (dB)	Predicted Internal Noise Level (windows open) dB	Predicted Internal Noise Level (windows closed) dB	Criteria L_{Aeq} (window open scenario) dB	Impact Level (Window Open Scenario)
ESR1	52.7	37.7	22.7	55.0	NOEL
ESR2	51.4	36.4	21.4	55.0	NOEL
ESR3	49.8	34.8	19.8	55.0	NOEL
ESR4	49.3	34.3	19.3	55.0	NOEL
ESR5	49.9	34.9	19.9	55.0	NOEL
ESR6	47.8	32.8	17.8	55.0	NOEL
ESR7	52.2	37.2	22.2	55.0	NOEL
ESR8	52.1	37.1	22.1	55.0	NOEL
ESR9	51.4	36.4	21.4	55.0	NOEL
ESR10	52.7	37.7	22.7	55.0	NOEL
ESR11	54.3	39.3	24.3	55.0	NOEL
ESR12	51.4	36.4	21.4	55.0	NOEL
ESR13	51.7	36.7	21.7	55.0	NOEL
ESR14	51.5	36.5	21.5	55.0	NOEL
ESR15	51.5	36.5	21.5	55.0	NOEL

10.4.10 The assessment shown in **Table 34** above shows that the predicted internal noise levels resulting from an instantaneous maximum noise event during a football match at the proposed AGP is likely to fall below the night-time maximum noise level guidance specified in the AD-O guidance at all assessed ESRs. All ESRs will fall within the NOEL effect level in accordance with the NPPF.

10.4.11 Furthermore, existing maximum noise levels measured at LT1 and LT2 are 96dB and 85dB $L_{A_{Fmax}}$ respectively, therefore, the predicted maximum noise levels are considerably below the existing measured maximum noise levels.

External Amenity Area Assessment – Alternative Location

10.4.12 An assessment of external noise levels by comparing predicted sound levels from the cumulative use of the AGP and car parks has been undertaken. **Table 35** presents the results of the assessment.

10.4.13 The predicted external noise levels have been compared to the 55dB noise criteria specified within the SE-AGP and WHO guidance.

Table 35: External Amenity Assessment (Weekday and Weekend) – Alternative Location		
Receptor	Predicted Sound Level $L_{Aeq,T}$	Impact Level
ESR1	51.3	NOAEL
ESR2	49.4	NOEL
ESR3	48.7	NOEL
ESR4	48.0	NOEL
ESR5	49.7	NOEL
ESR6	46.9	NOEL
ESR7	50.3	NOAEL
ESR8	49.6	NOEL
ESR9	50.2	NOAEL
ESR10	52.4	NOAEL
ESR11	54.6	NOAEL
ESR12	51.8	NOAEL
ESR13	51.6	NOAEL
ESR14	51.0	NOAEL
ESR15	50.2	NOAEL

10.4.14 Noise levels are predicted to be below the assessment criteria at all of the assessed ESRs and are likely to fall within the NOAEL category in accordance with the NPPF.

Summary of Noise Assessments – Alternative Location

10.4.15 A summary of the impact assessment is presented in **Table 36**. Based on the summary additional mitigation is required to reduce the noise impact on the nearest dwellings.

Table 36: Summary Impact Assessment Conclusion – Alternative Location						
Receptor	Change In Noise Level Assessment	Internal Break-in Assessment (Windows Open)		External Amenity Area Assessment	Overall	Additional Mitigation Needed
		L _{Aeq,1hr}	L _{Afmax}			
ESR1	NOAEL	LOAEL	NOEL	NOAEL	NOAEL	No
ESR2	NOAEL	NOEL	NOEL	NOEL	NOEL	No
ESR3	NOAEL	NOEL	NOEL	NOEL	NOEL	No
ESR4	NOAEL	NOEL	NOEL	NOEL	NOEL	No
ESR5	NOAEL	NOEL	NOEL	NOEL	NOEL	No
ESR6	NOEL	NOEL	NOEL	NOEL	NOEL	No
ESR7	NOAEL	LOAEL	NOEL	NOAEL	NOAEL	No
ESR8	NOAEL	NOEL	NOEL	NOEL	NOEL	No
ESR9	NOAEL	LOAEL	NOEL	NOAEL	NOAEL	No
ESR10	LOAEL	LOAEL	NOEL	NOAEL	LOAEL	Yes
ESR11	LOAEL	LOAEL	NOEL	NOAEL	LOAEL	Yes
ESR12	LOAEL	LOAEL	NOEL	NOAEL	LOAEL	Yes
ESR13	LOAEL	LOAEL	NOEL	NOAEL	LOAEL	Yes
ESR14	NOAEL	LOAEL	NOEL	NOAEL	LOAEL	Yes
ESR15	NOAEL	LOAEL	NOEL	NOAEL	LOAEL	Yes

10.4.16 The alternative location will require additional mitigation in the form of a acoustic barrier. The acoustic barrier will be required to be located around the entirety of the site and to a minimum height of 3.0m.

10.4.17 Based on the comparison with the original assessment it can be seen locating the pitches within the centre of the park does reduce the impact however the reduction is not sufficient to warrant no additional mitigation being required.

10.4.18 The mitigation required at this location is significantly more extensive than that proposed for the northern site and is expected to result in a greater visual impact across the park. In particular, the inclusion of additional acoustic fencing around the perimeter introduces a large and intrusive visual element. The central positioning of the pitch further compounds this, creating a dominant physical and visual structure

that disrupts the openness of the site. This configuration also affects the active travel route, which would need to be diverted around the installation, reducing connectivity and accessibility. Moreover, the central location dominates the site and poses challenges to the master planning process by reducing opportunities for alternative recreation and ecological functions. This would thereby reduce the potential for a more integrated and multifunctional landscape.

- 10.4.19 Based on this assessment and minor improvements afforded by moving the pitch to the centre the benefits of moving the pitch would not outweigh the costs and as such the location is not considered feasible to allow the pitch to be delivered successfully.

11 CONCLUSION

- 11.1.1 This report presents the findings of a noise assessment to support a planning application for a proposed AGP and associated car park at Grace Park.
- 11.1.2 The noise assessment demonstrates that to reduce the noise impact on the nearest dwellings to within the relevant national guidelines, mitigation in the form of an acoustic barrier along the northern and eastern perimeter of the development is required (3.0m or 4.0m in height).
- 11.1.3 With this mitigation in place, it is expected that the noise impact from the proposed development on the nearest dwellings will be at the **NOAEL** with a 4.0m barrier and at the **LOAEL** with a 3.0m barrier when assessed using the guidance in the NPSE and NPPF.

APPENDICES

Table A1: National planning policy relevant to the noise assessment											
Policy	Policy Context										
National planning policy											
National Planning Policy Framework (NPPF)	Paragraph 187 states that the planning system should contribute to and enhance the natural and local environment by (amongst other considerations) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of noise pollution. Paragraph 198 states that planning policies and decisions should ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution. This involves, in particular, mitigating and reducing to a minimum, potential adverse impacts resulting from noise; avoiding noise that gives rise to significant adverse impacts on health and the quality of life In addition, tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value should be identified and protected. Paragraph 200 states that planning policies and decisions should ensure that new development can be integrated effectively with existing business and community facilities, with existing businesses not having unreasonable restrictions placed on them as a result of new development permitted after the business was established. Where the operation of an existing business or community facility could have a significant adverse effect on a new development, the application should provide suitable mitigation before the development is complete. This should be taken into account when considering whether proposed development is an acceptable use of land.										
Noise Policy Statement for England (NPSE)	Paragraph 1.6 sets out the long-term vision of Government noise policy, i.e. to “promote good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development.” Paragraph 1.7 states that the NPSE vision is supported by aims to effectively manage and control environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development by avoiding significant adverse impacts, mitigating and minimising adverse impacts and contributing to the improvement of health and quality of life. Paragraph 2.20 states that to identify “significant adverse” and “adverse” impact in line with the three aims of NPSE, there are two established concepts from toxicology that are currently being applied to noise impacts, for example, by the World Health Organization: No Observed Effect Level (NOEL): 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. Lowest Observed Adverse Effect Level (LOAEL): This is the level above which adverse effects on health and quality of life can be detected. Significant Observed Adverse Effect Level (SOAEL). This is the level above which significant adverse effects on health and quality of life occur. Paragraph 2.24 states that where an impact lies somewhere between LOAEL and SOAEL, 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 (paragraph 1.8). This does not mean that such adverse effects cannot occur. Paragraph 2.22 notes that the NPSE states “it is not possible to have a single objective noise-based measure that defines SOAEL that is applicable to all sources of noise in all situations. Consequently, the SOAEL is likely to be different for different noise sources, for different receptors and at different times. It is acknowledged that further research is required to increase our understanding of what may constitute a significant adverse impact on health and quality of life from noise. However, not having specific SOAEL values in the NPSE provides the necessary policy flexibility until further evidence and suitable guidance is available.”										
Planning Practice Guidance - Noise (PPG-N)	The PPG-N provides guidance in the form of a noise exposure hierarchy, which details the levels of perception to noise exposure and the expected outcomes and required actions. <table><tr><th colspan="4">Table 1 PPG Noise exposure Hierarchy</th></tr><tr><th>Perception</th><th>Examples of Outcomes</th><th>Increasing Effect Level</th><th>Action</th></tr></table>			Table 1 PPG Noise exposure Hierarchy				Perception	Examples of Outcomes	Increasing Effect Level	Action
Table 1 PPG Noise exposure Hierarchy											
Perception	Examples of Outcomes	Increasing Effect Level	Action								

	Not Present	No Effect	No Observed Effect	No Specific Measures Required
	Present and not intrusive	Noise can be heard, but does not cause any change in behaviour, attitude or other physiological response. Can slightly affect the acoustic character of the area but not such that there is a change in the quality of life.	No Observed Adverse Effect	No Specific Measures Required
	Lowest Observed adverse Effect Level (LOAEL)			
	Present and not intrusive	Noise can be heard and causes small changes in behaviour, attitude or other physiological response, 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 small actual or perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
	Significant Observed adverse Effect Level (SOAEL)			
	Present and not disruptive	The noise causes a material change in behaviour, attitude or other physiological response, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.	Significant Observed Adverse Effect	Avoid
	Present and very disruptive	Extensive and regular changes in behaviour, attitude or other physiological response and/or an inability to mitigate effect of noise leading to psychological stress, e.g. regular sleep deprivation/awakening; loss of appetite,	Unacceptable Adverse Effect	Prevent

		significant, medically definable harm, e.g. auditory and non-auditory.		
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Table A2: Guidance relevant to the noise and vibration assessment

Guidance document	Summary
Institute of Environmental Management and Assessment (IEMA) (2014) Guidelines for Environmental Noise Impact Assessment	Presents guidelines on how the assessment of noise effects should be presented within the Environmental Impact Assessment (EIA) process. The IEMA guidelines cover aspects such as: scoping, baseline, prediction and example definitions of significance criteria.
ISO 9613:1996 Acoustics – Attenuation of sound during propagation outdoors: Part 2 General Method of Calculation (ISO 9613-2)	Defines a method for calculating the attenuation of sound during propagation outdoors in order to predict the levels of environmental noise at distances from a source.
BS 7445-1:2003 <i>Description and measurement of environmental noise. Guide to quantities and procedures</i>	Details standardised guidance for the measurement of environmental noise. The pertinent details of BS 7445-1:2003 ¹ adopted in this assessment are as follows: - instrumentation to measure equivalent continuous A-weighted sound pressure level conforming to Type 1 as given is BS EN 61672-1:2013 <i>Electroacoustics. Sound level meters - specifications</i>.¹; - all equipment calibrated and the calibration shall follow manufacturer's instructions. All sound monitoring equipment is calibrated at an accredited laboratory at a minimum interval of 24 months. To maintain confidence in recorded sound levels, sound level meters were field calibrated prior to and after use with the recommended manufacturer's calibrator. No significant drift (i.e., greater than 0.5 dB) in calibration was recorded; and - minimise the influence of reflections by, whenever possible, undertaking measurements at least 3.5 m from any reflective surface other than the ground. Preferred measurement height is 1.2 m to 1.5 m above the ground.
BS 8233:2014 Guidance on sound insulation and noise reduction for buildings	BS8233:2014 presents design criteria for noise within habitable rooms in new residential developments to avoid adverse impacts on sustainability for the intended use. In summary, these are: - Resting in Living Rooms: 35 dB $L_{Aeq,16h}$ (daytime) - Dining in Dining Rooms / Areas: 40 dB $L_{Aeq,16h}$ (daytime) - Sleeping or resting in Bedrooms: 35 dB $L_{Aeq,16h}$ (daytime) / 30 dB $L_{Aeq,8h}$ (night-time).
World Health Organization (WHO) (1999) Guidelines for Community Noise	Presents guideline noise levels for community noise in specific residential environments, e.g., outdoor living areas.
Professional Practice Guidance on Planning and Noise, New Residential Development, 2017 (ProPG).	This Professional Practice Guidance on Planning and Noise (ProPG) has been produced to provide practitioners with guidance on a recommended approach to the management of noise within the planning system in England.

¹ British Standards Institution (2013). BS 61672-1:2013 Electroacoustics. Sound level meters – specifications. BSI, London.

Appendix B - Terminology

This section provides explanations and definitions for terms which may be used in this report.

The decibel scale, A-weighting & typical sound levels

A logarithmic scale is used when defining sound level measurements, the scale used is the decibel (dB). This is due to the ratio between the lowest audible sound and the highest being a million to one in terms of change in sound pressure. The human response to airborne sound pressure level is typically between 0 – 140 dB.

Due to the sensitivity of the ear in terms of pitch and frequency, A-weighting is applied to instrument measured sound which accounts for the relative loudness perceived by the human ear. Therefore, these measurements with this correction factor are written as dBA or dB(A).

The dB(A) unit is internationally accepted and has been found to correspond well with people's subjective reaction to sound. Typical dB(A) sound levels for familiar sounds are given in **Table B.1**.

Table B.1 Typical sound levels¹	
Approximate noise level dB(A)	Example
0	Threshold of hearing for normal young people.
20	Recording studio, ambient level.
40	Quiet residential neighbourhood, ambient level.
60	Department store, restaurant, speech levels.
80	Next to busy highway, shouting.
100	Textile mill; press room with presses running; punch press and wood planers, at operators' position.
120	Ship's engine room, rock concert, in front and close to speakers.
140	Moon launch at 100m; artillery fire, gunner's position.

Sound power, sound level indices and other descriptors

The sound levels given in Table A.1 are sound pressure levels (L_p) and describe the sound level at a measurable distance from a source. Sound power level (L_w) is the total acoustic energy emitted by a source and are intrinsic.

Sound pressure levels vary over time depending on sound generating activities. The following indices are used to take account of these variations:

$L_{Aeq, T}$ - the equivalent continuous sound level. This is the sound level of a steady sound having the same energy as a fluctuating sound over the same period. Ambient sound levels are described with this index. $L_{Aeq, T}$ is considered the best general-purpose index for environmental sound, as it is the index which generally best represents how sound levels are perceived;

¹ Bies, D.A., Hansen, C.H., 2009. Engineering Noise Control: Theory & Practice. 4th Edition. Abingdon: Spon Press.

$L_{A90, \tau}$ - this noise index represents the sound level exceeded for 90% of the measurement period and is used to indicate quieter times during the measurement period. In BS 4142 assessments it is usually referred to as the background sound level, and describes the quietest 10% of a measurement period; and

L_{Amax} - is the maximum recorded sound level during the measurement period.

In addition, the following descriptors are often used in noise assessments:

Ambient sound is the totally encompassing sound in a given situation, at a given time, usually composed of sound from many sources near and far;

Fast time weighting is where a sound pressure level measurement using a 125 ms moving average time weighting period has been used;

Free field signifies that a sound measurement has been undertaken in 'free field' conditions i.e., away from any reflecting facades, other than the ground, e.g., building facades, close boarded fence work etc.; and

Façade level: A standard correction of +3 dB may be added to a free field sound level to estimate the sound level 1 m away from a façade to account for both the sound upon the façade and the reflected sound from the façade. When considering the break in of external sound into a room, the sound level which is incident upon the façade, rather than the façade level, is considered because only the incident sound will pass through the fabric of the building, whilst reflected sound travels away from the building. The standard +3 dB façade correction is most applicable in situations where the façade has a relatively unobstructed angle of view of the source (i.e., an uninterrupted 180° angle of view of the source in the horizontal plane).

Appendix C – Noise Monitoring Data

Table A.1 – Measured Sound Levels at LT1

Period start	Broadband Sound Levels, dBA				Octave Band Sound Levels, dB Leq						
	Leq	Lmax	L90	L10	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz
15/11/2024 15:00	47	61	44	49	58	54	43	42	45	35	30
15/11/2024 15:15	47	60	45	48	56	52	42	42	45	35	31
15/11/2024 15:30	47	58	45	48	55	52	42	40	45	35	32
15/11/2024 15:45	46	58	41	48	56	52	41	41	44	34	25
15/11/2024 16:00	46	67	42	47	54	51	50	41	43	34	25
15/11/2024 16:15	47	57	45	49	55	50	41	42	46	35	23
15/11/2024 16:30	47	59	45	48	55	51	41	41	45	34	23
15/11/2024 16:45	47	57	44	48	55	51	42	41	45	34	23
15/11/2024 17:00	46	61	45	48	55	51	43	41	44	35	27
15/11/2024 17:15	57	83	43	48	53	50	42	42	54	53	28
15/11/2024 17:30	44	54	42	45	53	50	40	39	42	32	22
15/11/2024 17:45	47	77	42	49	53	53	43	43	45	37	30
15/11/2024 18:00	51	84	42	46	52	49	42	50	49	38	29
15/11/2024 18:15	44	52	42	45	53	49	40	39	42	32	21
15/11/2024 18:30	44	55	41	46	55	52	40	39	42	33	25
15/11/2024 18:45	46	67	43	48	56	53	43	41	44	37	31
15/11/2024 19:00	45	69	43	46	52	53	42	40	42	35	32
15/11/2024 19:15	46	60	43	48	52	48	42	39	44	36	25
15/11/2024 19:30	46	60	43	49	53	49	43	40	44	36	25
15/11/2024 19:45	51	81	43	51	53	51	44	49	48	41	34
15/11/2024 20:00	54	75	46	55	58	55	51	52	51	44	33
15/11/2024 20:15	49	67	45	52	55	50	43	47	47	36	25

Table A.1 – Measured Sound Levels at LT1

Period start	Broadband Sound Levels, dBA				Octave Band Sound Levels, dB Leq						
	Leq	Lmax	L90	L10	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz
15/11/2024 20:30	49	70	44	52	57	53	44	47	47	38	27
15/11/2024 20:45	46	56	44	48	53	48	39	41	45	33	19
15/11/2024 21:00	46	62	43	48	53	49	48	42	44	31	18
15/11/2024 21:15	45	58	42	47	51	46	42	41	43	30	17
15/11/2024 21:30	48	61	43	51	54	50	45	44	46	33	19
15/11/2024 21:45	46	66	41	46	54	48	41	43	44	31	18
15/11/2024 22:00	46	59	39	49	50	48	44	44	43	30	17
15/11/2024 22:15	44	59	39	48	51	47	44	43	41	27	16
15/11/2024 22:30	45	65	41	46	55	50	43	43	42	29	16
15/11/2024 22:45	44	53	41	46	52	46	37	39	42	32	19
15/11/2024 23:00	44	52	42	45	52	46	36	38	42	32	17
15/11/2024 23:15	43	51	41	44	51	45	36	38	41	28	16
15/11/2024 23:30	41	50	39	43	51	45	35	37	40	27	16
15/11/2024 23:45	43	56	38	47	50	46	40	40	40	29	17
16/11/2024 00:00	38	48	36	39	49	44	34	34	36	24	16
16/11/2024 00:15	39	49	37	40	49	44	34	35	37	24	16
16/11/2024 00:30	38	46	36	40	48	43	34	34	36	24	16
16/11/2024 00:45	38	47	36	40	46	42	33	35	36	28	16
16/11/2024 01:00	41	52	35	45	51	47	38	38	39	27	17
16/11/2024 01:15	44	56	33	50	49	47	41	41	42	29	18
16/11/2024 01:30	37	47	34	39	47	43	32	34	36	24	17

Table A.1 – Measured Sound Levels at LT1

Period start	Broadband Sound Levels, dBA				Octave Band Sound Levels, dB Leq						
	Leq	Lmax	L90	L10	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz
16/11/2024 01:45	36	45	34	37	49	42	32	32	33	22	16
16/11/2024 02:00	36	43	34	37	48	42	31	32	33	22	17
16/11/2024 02:15	36	47	33	37	47	42	32	32	33	22	16
16/11/2024 02:30	36	44	34	37	47	42	32	32	33	22	17
16/11/2024 02:45	36	42	33	37	47	41	32	32	33	22	16
16/11/2024 03:00	36	46	34	38	46	42	33	33	33	22	16
16/11/2024 03:15	39	58	35	40	48	45	34	33	35	30	27
16/11/2024 03:30	40	56	35	42	49	44	34	34	38	31	24
16/11/2024 03:45	36	46	34	37	45	42	31	32	34	24	20
16/11/2024 04:00	37	53	35	39	47	42	34	33	35	23	25
16/11/2024 04:15	39	55	36	42	46	42	32	34	37	26	30
16/11/2024 04:30	39	52	36	41	48	44	35	34	36	25	29
16/11/2024 04:45	37	53	34	38	46	40	32	32	34	23	27
16/11/2024 05:00	37	45	35	39	48	42	34	33	35	24	19
16/11/2024 05:15	39	46	37	41	48	45	36	35	37	26	19
16/11/2024 05:30	39	47	37	41	48	43	35	35	37	27	20
16/11/2024 05:45	40	54	37	42	48	43	42	37	37	27	18
16/11/2024 06:00	41	61	38	44	51	46	41	39	38	28	22
16/11/2024 06:15	46	61	38	50	56	52	49	45	40	29	20
16/11/2024 06:30	44	59	38	48	56	52	46	43	40	29	20
16/11/2024 06:45	45	66	39	49	50	46	42	41	43	35	21
16/11/2024 07:00	46	58	39	51	54	51	45	44	43	33	26

Table A.1 – Measured Sound Levels at LT1

Period start	Broadband Sound Levels, dBA				Octave Band Sound Levels, dB Leq						
	Leq	Lmax	L90	L10	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz
16/11/2024 07:15	45	60	40	48	56	52	44	42	42	34	32
16/11/2024 07:30	45	58	41	47	55	51	44	42	41	34	29
16/11/2024 07:45	48	62	41	53	56	54	51	47	42	35	26
16/11/2024 08:00	42	53	39	44	54	49	39	38	40	31	23
16/11/2024 08:15	43	52	41	45	52	47	42	38	40	33	24
16/11/2024 08:30	45	57	42	47	54	49	43	41	42	36	28
16/11/2024 08:45	44	58	41	46	51	49	41	38	41	36	32
16/11/2024 09:00	44	63	40	47	51	49	43	40	40	37	32
16/11/2024 09:15	44	58	40	46	52	49	45	40	40	36	29
16/11/2024 09:30	44	57	40	47	53	47	41	38	41	37	32
16/11/2024 09:45	46	64	40	46	53	48	46	42	42	37	33
16/11/2024 10:00	45	60	39	47	51	49	47	42	39	35	31
16/11/2024 10:15	42	54	38	44	51	47	40	36	37	34	31
16/11/2024 10:30	42	57	37	45	51	47	42	36	38	34	29
16/11/2024 10:45	43	62	38	45	51	47	38	34	39	36	31
16/11/2024 11:00	42	56	38	44	51	47	39	33	39	34	30
16/11/2024 11:15	43	58	39	45	54	48	46	37	39	34	28
16/11/2024 11:30	42	57	39	45	49	47	41	36	39	34	28
16/11/2024 11:45	44	69	40	46	52	49	43	37	40	37	31
16/11/2024 12:00	44	55	42	46	53	49	43	40	41	35	30
16/11/2024 12:15	46	61	42	48	54	52	47	42	42	34	29
16/11/2024 12:30	55	89	42	48	51	50	45	46	54	40	31

Table A.1 – Measured Sound Levels at LT1

Period start	Broadband Sound Levels, dBA				Octave Band Sound Levels, dB Leq						
	Leq	Lmax	L90	L10	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz
16/11/2024 12:45	71	96	41	58	51	49	46	65	69	62	50
16/11/2024 13:00	61	90	41	53	50	46	41	58	60	46	37
16/11/2024 13:15	44	60	40	46	51	51	45	41	40	32	29
16/11/2024 13:30	43	58	39	44	49	47	41	39	40	32	25
16/11/2024 13:45	44	65	40	45	51	52	43	41	41	33	30
16/11/2024 14:00	47	67	40	48	59	52	48	42	43	36	28
16/11/2024 14:15	44	57	40	46	51	48	41	38	41	34	27
16/11/2024 14:30	45	59	41	48	53	52	46	41	41	35	31
16/11/2024 14:45	43	69	40	45	50	46	39	40	40	34	32
16/11/2024 15:00	46	65	40	47	53	49	43	43	43	34	30
16/11/2024 15:15	44	60	40	47	54	50	41	37	41	35	33
16/11/2024 15:30	45	62	40	47	52	49	41	38	42	37	31
16/11/2024 15:45	40	62	37	41	49	44	36	34	38	28	23
16/11/2024 16:00	41	56	37	43	51	45	39	37	38	28	20
16/11/2024 16:15	41	60	37	43	49	45	40	39	38	30	21
16/11/2024 16:30	42	63	37	43	52	46	39	38	40	28	19
16/11/2024 16:45	40	57	37	42	48	45	35	34	39	27	19
16/11/2024 17:00	41	50	38	42	48	43	37	36	39	28	20
16/11/2024 17:15	41	56	38	43	51	47	42	37	38	27	20
16/11/2024 17:30	41	56	37	45	49	45	45	38	38	27	18
16/11/2024 17:45	39	56	37	40	48	42	36	34	37	26	18
16/11/2024 18:00	40	51	37	42	48	43	39	36	38	27	19

Table A.1 – Measured Sound Levels at LT1

Period start	Broadband Sound Levels, dBA				Octave Band Sound Levels, dB Leq						
	Leq	Lmax	L90	L10	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz
16/11/2024 18:15	41	62	37	43	48	49	40	37	38	27	20
16/11/2024 18:30	44	64	38	44	53	49	45	43	40	27	19
16/11/2024 18:45	46	66	37	45	55	50	48	45	40	29	25
16/11/2024 19:00	44	69	39	47	49	49	45	42	39	31	29
16/11/2024 19:15	41	56	38	43	47	44	42	38	39	28	22
16/11/2024 19:30	43	59	38	47	48	53	45	41	38	29	20
16/11/2024 19:45	44	61	38	47	53	51	47	42	39	27	19
16/11/2024 20:00	40	54	37	43	48	45	41	37	37	27	18
16/11/2024 20:15	45	61	37	48	49	51	49	43	37	25	19
16/11/2024 20:30	40	66	36	41	46	43	41	34	38	26	21
16/11/2024 20:45	38	45	35	40	46	42	33	33	36	25	18
16/11/2024 21:00	45	60	35	48	45	41	35	35	40	39	39
16/11/2024 21:15	36	44	33	38	45	41	34	31	34	23	18
16/11/2024 21:30	42	64	34	45	46	46	45	39	36	31	30
16/11/2024 21:45	39	61	35	41	46	43	37	33	38	29	20
16/11/2024 22:00	38	50	34	41	50	45	37	34	35	26	20
16/11/2024 22:15	36	43	34	38	44	39	36	31	34	24	19
16/11/2024 22:30	37	47	34	39	45	40	33	33	35	26	19
16/11/2024 22:45	36	48	33	39	42	41	36	32	34	23	19
16/11/2024 23:00	35	51	33	37	44	39	31	31	34	23	18
16/11/2024 23:15	38	60	31	38	44	44	41	36	32	20	17
16/11/2024 23:30	35	50	32	37	42	38	31	31	33	22	18

Table A.1 – Measured Sound Levels at LT1

Period start	Broadband Sound Levels, dBA				Octave Band Sound Levels, dB Leq						
	Leq	Lmax	L90	L10	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz
16/11/2024 23:45	35	43	32	37	41	38	33	31	32	22	18
17/11/2024 00:00	34	45	31	36	44	38	30	30	31	21	19
17/11/2024 00:15	32	45	29	34	43	37	28	27	29	19	17
17/11/2024 00:30	32	45	29	33	41	37	31	26	29	19	16
17/11/2024 00:45	35	56	28	38	43	41	42	29	28	20	18
17/11/2024 01:00	30	42	27	31	38	34	26	25	28	18	16
17/11/2024 01:15	30	44	28	32	39	34	27	26	28	17	16
17/11/2024 01:30	32	40	30	33	39	35	28	28	29	17	16
17/11/2024 01:45	33	47	29	35	42	39	34	29	29	20	20
17/11/2024 02:00	29	56	27	30	40	33	27	26	27	16	16
17/11/2024 02:15	30	62	27	29	38	33	27	27	28	17	16
17/11/2024 02:30	32	44	28	35	41	36	29	28	29	19	19
17/11/2024 02:45	31	43	28	34	40	37	31	28	28	19	19
17/11/2024 03:00	28	48	26	30	37	33	26	24	25	16	16
17/11/2024 03:15	28	46	26	29	39	34	26	24	26	15	15
17/11/2024 03:30	40	67	27	32	41	49	47	32	28	16	21
17/11/2024 03:45	49	70	33	52	44	55	56	44	32	19	20
17/11/2024 04:00	31	46	28	34	39	37	29	28	29	16	16
17/11/2024 04:15	36	60	27	31	39	37	41	36	26	16	17
17/11/2024 04:30	38	58	27	39	40	41	43	40	27	17	17
17/11/2024 04:45	31	46	27	33	39	34	27	25	28	16	23
17/11/2024 05:00	48	69	27	50	43	51	56	46	28	16	25

Table A.1 – Measured Sound Levels at LT1

Period start	Broadband Sound Levels, dBA				Octave Band Sound Levels, dB Leq						
	Leq	Lmax	L90	L10	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz
17/11/2024 05:15	38	57	30	43	41	48	43	36	31	18	16
17/11/2024 05:30	39	58	33	42	43	41	44	37	33	21	27
17/11/2024 05:45	40	60	36	42	45	43	42	37	37	25	19
17/11/2024 06:00	43	62	37	46	50	49	46	41	38	26	22
17/11/2024 06:15	40	59	33	42	44	46	44	37	34	22	20
17/11/2024 06:30	41	58	32	44	50	47	45	39	33	27	25
17/11/2024 06:45	37	53	31	41	45	42	40	34	32	24	27
17/11/2024 07:00	41	65	32	43	52	47	41	35	36	33	30
17/11/2024 07:15	42	67	31	44	46	43	44	38	36	35	30
17/11/2024 07:30	44	66	35	48	55	51	48	42	35	34	30
17/11/2024 07:45	42	58	37	45	46	44	41	37	36	33	34
17/11/2024 08:00	47	61	39	50	54	50	48	42	41	40	39
17/11/2024 08:15	46	56	41	50	52	48	47	43	43	35	31
17/11/2024 08:30	46	53	44	47	51	49	42	41	44	34	27
17/11/2024 08:45	47	61	43	50	51	50	51	45	44	33	25
17/11/2024 09:00	47	63	42	50	52	52	50	46	42	34	28
17/11/2024 09:15	47	61	39	52	49	49	47	46	42	38	36
17/11/2024 09:30	44	62	37	46	52	50	46	42	38	31	29
17/11/2024 09:45	41	56	37	43	48	46	40	36	38	30	27
17/11/2024 10:00	45	58	40	48	53	49	47	43	41	33	28
17/11/2024 10:15	46	62	41	49	52	49	49	44	41	34	30
17/11/2024 10:30	45	58	40	48	50	48	46	41	42	33	25

Table A.1 – Measured Sound Levels at LT1

Period start	Broadband Sound Levels, dBA				Octave Band Sound Levels, dB Leq						
	Leq	Lmax	L90	L10	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz
17/11/2024 10:45	48	65	42	52	51	50	48	46	44	36	32
17/11/2024 11:00	45	61	41	48	50	49	47	44	41	32	28
17/11/2024 11:15	45	56	42	47	51	49	44	41	42	32	27
17/11/2024 11:30	46	61	43	49	55	50	44	41	43	36	34
17/11/2024 11:45	46	59	43	49	55	50	48	43	43	34	30
17/11/2024 12:00	49	60	45	52	55	51	48	44	45	40	39
17/11/2024 12:15	50	62	44	53	54	53	50	48	45	40	38
17/11/2024 12:30	49	58	44	51	52	49	44	43	44	41	40
17/11/2024 12:45	48	63	43	50	52	49	42	39	42	41	40
17/11/2024 13:00	47	59	42	51	51	47	41	38	44	41	38
17/11/2024 13:15	47	61	42	51	53	48	45	43	42	40	39
17/11/2024 13:30	49	72	41	52	53	48	46	44	47	37	32
17/11/2024 13:45	52	69	41	56	52	48	46	45	47	45	44
17/11/2024 14:00	55	68	47	58	57	53	47	46	50	48	47
17/11/2024 14:15	52	62	45	55	51	47	41	41	47	47	45
17/11/2024 14:30	46	62	42	48	50	47	48	41	41	37	37
17/11/2024 14:45	50	59	43	53	50	44	42	39	44	44	43
17/11/2024 15:00	47	59	42	50	50	44	43	40	40	41	40
17/11/2024 15:15	54	67	48	56	55	54	51	49	48	47	45
17/11/2024 15:30	51	62	41	54	51	44	39	38	44	45	44
17/11/2024 15:45	52	74	37	44	51	51	51	50	48	42	30
17/11/2024 16:00	43	59	38	46	50	50	46	42	38	28	23

Table A.1 – Measured Sound Levels at LT1

Period start	Broadband Sound Levels, dBA				Octave Band Sound Levels, dB Leq						
	Leq	Lmax	L90	L10	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz
17/11/2024 16:15	43	58	36	44	50	48	45	42	37	29	25
17/11/2024 16:30	42	58	37	45	50	47	44	41	37	28	23
17/11/2024 16:45	44	60	40	46	49	46	46	41	40	30	25
17/11/2024 17:00	43	51	41	45	49	45	41	38	42	31	22
17/11/2024 17:15	46	58	43	49	51	50	46	43	44	33	21
17/11/2024 17:30	45	59	42	46	49	48	44	42	43	32	20
17/11/2024 17:45	45	59	42	46	51	46	46	41	43	32	20
17/11/2024 18:00	46	63	42	46	50	46	44	44	44	33	20
17/11/2024 18:15	43	50	41	44	48	43	39	36	41	31	18
17/11/2024 18:30	43	56	40	44	50	50	43	36	40	31	24
17/11/2024 18:45	44	56	40	47	55	52	45	41	40	30	18
17/11/2024 19:00	42	55	40	44	49	46	40	37	40	33	20
17/11/2024 19:15	43	55	40	45	50	46	40	37	41	30	20
17/11/2024 19:30	44	57	41	47	49	53	45	40	41	29	19
17/11/2024 19:45	46	61	42	47	50	52	48	44	43	32	20
17/11/2024 20:00	45	56	42	47	49	46	42	40	44	32	20
17/11/2024 20:15	45	51	42	46	52	47	40	38	43	31	19
17/11/2024 20:30	46	55	43	48	50	48	45	41	44	32	20
17/11/2024 20:45	48	57	44	51	50	49	44	42	46	38	34
17/11/2024 21:00	52	60	47	54	49	46	43	41	47	46	45
17/11/2024 21:15	47	68	38	50	52	50	42	40	43	38	37
17/11/2024 21:30	47	64	39	49	50	50	48	46	42	30	24

Table A.1 – Measured Sound Levels at LT1

Period start	Broadband Sound Levels, dBA				Octave Band Sound Levels, dB Leq						
	Leq	Lmax	L90	L10	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz
17/11/2024 21:45	44	58	42	46	49	45	39	38	43	32	23
17/11/2024 22:00	47	55	44	49	50	47	41	40	45	35	21
17/11/2024 22:15	45	55	42	46	48	46	42	39	43	32	20
17/11/2024 22:30	42	50	40	44	47	44	38	36	40	32	29
17/11/2024 22:45	45	55	40	47	45	41	35	34	39	39	37
17/11/2024 23:00	43	61	36	44	47	45	45	42	38	28	24
17/11/2024 23:15	41	62	35	42	47	43	44	38	36	29	19
17/11/2024 23:30	40	55	35	43	45	44	39	39	37	27	19
17/11/2024 23:45	42	60	37	43	50	46	43	41	39	28	19
18/11/2024 00:00	39	46	36	40	47	43	35	33	37	26	20
18/11/2024 00:15	39	54	35	42	46	43	36	33	36	30	27
18/11/2024 00:30	35	43	33	36	46	42	33	29	33	22	17
18/11/2024 00:45	35	48	31	37	43	42	35	32	31	21	16
18/11/2024 01:00	33	45	28	37	41	35	27	24	29	26	25
18/11/2024 01:15	40	60	29	41	45	52	42	33	30	28	27
18/11/2024 01:30	37	46	32	39	41	41	30	31	34	28	27
18/11/2024 01:45	37	51	31	41	41	38	30	31	34	29	28
18/11/2024 02:00	34	47	31	36	43	36	29	30	32	19	17
18/11/2024 02:15	36	43	33	38	42	38	32	31	35	21	16
18/11/2024 02:30	33	49	28	35	40	35	28	28	31	19	16
18/11/2024 02:45	30	45	27	32	39	33	25	26	28	17	16
18/11/2024 03:00	34	46	29	36	41	37	34	29	31	19	17

Table A.1 – Measured Sound Levels at LT1

Period start	Broadband Sound Levels, dBA				Octave Band Sound Levels, dB Leq						
	Leq	Lmax	L90	L10	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz
18/11/2024 03:15	36	44	32	38	43	39	29	32	34	20	17
18/11/2024 03:30	38	47	35	40	43	41	35	33	37	22	16
18/11/2024 03:45	40	50	36	42	43	43	41	36	38	23	16
18/11/2024 04:00	39	45	36	41	45	40	31	34	38	25	18
18/11/2024 04:15	41	53	36	43	45	42	40	37	39	24	17
18/11/2024 04:30	40	51	37	42	44	41	32	34	38	23	32
18/11/2024 04:45	43	50	40	45	45	41	33	38	42	31	22
18/11/2024 05:00	46	53	44	48	47	44	43	41	45	36	23
18/11/2024 05:15	49	54	46	51	50	46	42	42	48	36	28
18/11/2024 05:30	51	57	49	53	53	49	44	46	50	37	19
18/11/2024 05:45	51	57	49	53	52	48	46	45	50	37	20
18/11/2024 06:00	53	58	50	55	52	51	48	47	52	39	28
18/11/2024 06:15	54	59	52	55	53	49	44	47	53	40	26
18/11/2024 06:30	54	62	52	56	52	49	44	49	54	40	27
18/11/2024 06:45	54	59	52	56	54	50	46	48	54	41	22
18/11/2024 07:00	56	62	54	58	54	50	45	49	55	43	29
18/11/2024 07:15	55	64	53	56	55	51	45	49	54	42	30
18/11/2024 07:30	57	73	52	56	58	56	55	54	54	42	23
18/11/2024 07:45	52	58	50	53	57	52	45	47	51	37	25
18/11/2024 08:00	55	70	51	55	58	60	53	52	52	38	28
18/11/2024 08:15	53	57	51	54	58	52	48	48	52	38	22
18/11/2024 08:30	54	60	53	56	59	54	49	49	53	39	22

Table A.1 – Measured Sound Levels at LT1

Period start	Broadband Sound Levels, dBA				Octave Band Sound Levels, dB Leq						
	Leq	Lmax	L90	L10	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz
18/11/2024 08:45	56	66	54	57	58	56	50	51	55	42	22
18/11/2024 09:00	56	65	54	57	58	55	50	51	55	42	23
18/11/2024 09:15	56	62	54	58	57	53	49	51	55	42	26
18/11/2024 09:30	58	74	53	57	61	58	56	56	55	43	25
18/11/2024 09:45	56	62	54	58	60	55	53	51	55	41	22
18/11/2024 10:00	53	69	49	54	58	55	51	52	51	35	22
18/11/2024 10:15	50	64	47	51	57	52	45	47	48	33	25
18/11/2024 10:30	50	66	44	51	57	54	50	49	46	31	20
18/11/2024 10:45	48	61	43	51	55	52	44	41	43	42	39
18/11/2024 11:00	53	75	44	49	57	59	56	51	47	38	26
18/11/2024 11:15	49	64	43	49	58	52	50	47	46	34	22
18/11/2024 11:30	54	71	44	54	57	61	61	52	46	35	25
18/11/2024 11:45	48	68	44	51	56	54	47	46	46	35	27
18/11/2024 12:00	48	60	43	51	57	57	51	45	44	32	24
18/11/2024 12:15	47	60	43	48	58	53	46	43	44	33	24
18/11/2024 12:30	51	68	44	52	58	55	50	48	47	39	28
18/11/2024 12:45	46	64	43	48	56	49	44	42	45	34	25
18/11/2024 13:00	48	59	45	49	56	50	44	43	46	35	24
18/11/2024 13:15	54	74	45	52	55	59	54	53	50	42	29
18/11/2024 13:30	51	68	46	51	56	56	49	49	48	40	26
18/11/2024 13:45	50	56	48	51	54	49	45	44	48	37	30
18/11/2024 14:00	52	64	50	54	55	52	50	47	51	40	31

Table A.1 – Measured Sound Levels at LT1

Period start	Broadband Sound Levels, dBA				Octave Band Sound Levels, dB Leq						
	Leq	Lmax	L90	L10	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz
18/11/2024 14:15	51	61	49	52	55	50	44	44	49	39	34
18/11/2024 14:30	52	65	48	54	59	55	51	48	49	39	36
18/11/2024 14:45	52	66	49	53	58	54	50	48	49	39	35
18/11/2024 15:00	52	69	50	54	58	53	47	48	51	41	33
18/11/2024 15:15	52	72	49	52	59	53	47	48	51	41	32
18/11/2024 15:30	58	77	51	58	59	62	61	55	54	46	33
18/11/2024 15:45	52	60	51	54	56	52	45	45	51	40	24
18/11/2024 16:00	55	69	53	56	56	54	52	51	54	42	25
18/11/2024 16:15	53	62	52	55	54	51	45	46	53	42	27
18/11/2024 16:30	53	60	52	54	54	51	46	47	52	42	31
18/11/2024 16:45	53	65	51	54	55	50	45	46	52	42	33
18/11/2024 17:00	53	60	52	55	55	51	44	46	52	43	36
18/11/2024 17:15	53	63	51	55	55	49	45	46	51	44	37
18/11/2024 17:30	54	63	52	55	57	53	47	48	52	45	38
18/11/2024 17:45	56	77	52	56	57	55	59	55	52	45	39
18/11/2024 18:00	53	64	52	54	55	55	47	46	51	44	39
18/11/2024 18:15	56	76	51	56	56	58	53	53	53	46	38
18/11/2024 18:30	54	67	51	56	55	52	48	48	52	45	39
18/11/2024 18:45	53	66	51	55	55	51	45	47	52	45	38
18/11/2024 19:00	52	64	49	54	55	51	46	46	50	43	36
18/11/2024 19:15	50	65	48	52	53	50	45	45	48	42	35
18/11/2024 19:30	52	66	49	55	55	50	44	46	50	44	37

Table A.1 – Measured Sound Levels at LT1

Period start	Broadband Sound Levels, dBA				Octave Band Sound Levels, dB Leq						
	Leq	Lmax	L90	L10	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz
18/11/2024 19:45	56	74	50	57	56	56	55	54	52	46	37
18/11/2024 20:00	51	66	48	52	56	51	44	45	49	42	35
18/11/2024 20:15	50	60	48	52	55	50	43	45	48	39	31
18/11/2024 20:30	49	62	47	51	54	49	42	45	48	38	30
18/11/2024 20:45	49	64	47	50	54	49	42	45	47	37	28
18/11/2024 21:00	49	55	47	50	54	48	42	45	47	36	28
18/11/2024 21:15	49	56	47	51	55	49	43	46	48	36	27
18/11/2024 21:30	49	54	47	51	55	50	44	46	47	35	26
18/11/2024 21:45	48	59	46	50	54	51	44	45	46	34	25
18/11/2024 22:00	48	54	46	50	53	48	43	44	47	35	26
18/11/2024 22:15	47	52	45	49	53	47	40	43	45	33	25
18/11/2024 22:30	48	57	46	50	55	49	44	45	47	35	26
18/11/2024 22:45	47	55	44	49	54	48	41	43	45	34	24
18/11/2024 23:00	46	53	44	48	53	47	41	43	45	33	23
18/11/2024 23:15	46	58	43	47	52	47	42	43	44	31	22
18/11/2024 23:30	49	55	45	51	53	48	41	44	48	36	24
18/11/2024 23:45	46	55	43	49	54	49	41	43	45	33	22
19/11/2024 00:00	44	50	41	46	53	47	39	40	42	28	18
19/11/2024 00:15	43	53	40	45	53	48	39	41	40	27	18
19/11/2024 00:30	43	54	40	45	53	49	40	41	41	27	17
19/11/2024 00:45	44	55	42	46	54	49	43	42	42	29	17
19/11/2024 01:00	43	54	41	45	56	50	40	40	41	27	16

Table A.1 – Measured Sound Levels at LT1

Period start	Broadband Sound Levels, dBA				Octave Band Sound Levels, dB Leq						
	Leq	Lmax	L90	L10	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz
19/11/2024 01:15	41	49	39	43	54	47	38	39	39	24	16
19/11/2024 01:30	40	49	38	43	52	46	37	38	38	23	15
19/11/2024 01:45	39	47	37	41	49	44	36	37	37	21	16
19/11/2024 02:00	41	50	39	43	50	46	37	38	38	23	15
19/11/2024 02:15	41	54	38	43	49	45	41	39	38	24	21
19/11/2024 02:30	41	49	39	43	49	44	36	38	38	26	30
19/11/2024 02:45	41	48	39	43	50	46	38	38	37	26	30
19/11/2024 03:00	40	47	38	42	51	44	37	38	37	24	22
19/11/2024 03:15	41	50	39	43	50	43	36	39	39	25	18
19/11/2024 03:30	41	51	38	43	52	44	36	38	39	25	17
19/11/2024 03:45	42	48	39	44	49	44	38	39	40	26	17
19/11/2024 04:00	41	48	39	43	51	43	34	38	39	25	16
19/11/2024 04:15	41	49	39	43	51	44	39	39	39	24	16
19/11/2024 04:30	43	52	40	44	50	44	36	40	41	27	15
19/11/2024 04:45	43	50	41	44	50	45	36	40	41	27	16
19/11/2024 05:00	46	53	43	48	50	44	39	43	45	30	17
19/11/2024 05:15	50	54	48	51	53	47	44	46	48	34	18
19/11/2024 05:30	49	57	48	51	53	48	45	46	48	33	18
19/11/2024 05:45	48	57	47	50	53	47	45	45	47	32	18
19/11/2024 06:00	49	55	48	51	53	46	41	46	48	32	17
19/11/2024 06:15	52	68	49	53	58	51	49	50	50	34	17
19/11/2024 06:30	53	64	51	55	55	50	50	50	51	34	17

Table A.1 – Measured Sound Levels at LT1

Period start	Broadband Sound Levels, dBA				Octave Band Sound Levels, dB Leq						
	Leq	Lmax	L90	L10	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz
19/11/2024 06:45	53	58	52	55	56	50	47	50	52	35	18
19/11/2024 07:00	50	55	48	51	55	49	44	47	48	30	18
19/11/2024 07:15	47	55	44	50	56	50	47	45	45	29	19
19/11/2024 07:30	52	63	50	54	58	52	47	49	51	35	24
19/11/2024 07:45	55	75	50	54	58	52	52	51	54	39	27
19/11/2024 08:00	50	55	49	52	57	50	45	47	49	31	24
19/11/2024 08:15	51	62	48	53	58	52	51	48	49	35	26
19/11/2024 08:30	51	80	48	51	58	51	45	47	48	33	44
19/11/2024 08:45	53	67	50	53	59	54	50	51	51	34	21
19/11/2024 09:00	53	60	51	54	58	52	46	50	51	34	23
19/11/2024 09:15	51	62	50	53	58	52	50	49	50	30	20
19/11/2024 09:30	49	60	48	50	59	53	46	47	47	29	22
19/11/2024 09:45	49	59	48	51	58	52	44	47	47	30	26
19/11/2024 10:00	50	62	46	53	58	52	51	49	47	29	26
19/11/2024 10:15	51	66	46	51	57	56	49	50	48	37	26
19/11/2024 10:30	48	55	46	49	57	50	43	46	46	29	20
19/11/2024 10:45	47	61	45	48	59	52	46	46	43	28	19
19/11/2024 11:00	50	68	45	48	57	54	50	49	46	34	26
19/11/2024 11:15	45	61	43	47	57	51	45	43	42	27	19
19/11/2024 11:30	49	69	43	49	56	55	52	49	44	31	21
19/11/2024 11:45	46	67	43	47	56	50	46	45	43	29	27

Table A.2 – Measured Sound Levels at LT2

Period start	Broadband Sound Levels, dBA				Octave Band Sound Levels, dB Leq						
	Leq	Lmax	L90	L10	63H z	125H z	250H z	500H z	1Kh z	2KH Z	4KH z
15/11/2024 15:30	44	64	40	45	57	52	43	38	39	36	36
15/11/2024 15:45	47	66	42	47	57	50	44	43	43	40	35
15/11/2024 16:00	44	56	41	46	57	49	42	40	41	34	26
15/11/2024 16:15	44	61	40	44	56	52	49	38	38	34	26
15/11/2024 16:30	43	61	40	44	56	50	40	37	40	34	26
15/11/2024 16:45	43	54	40	44	55	47	41	39	40	34	25
15/11/2024 17:00	43	53	40	45	55	48	41	37	40	35	24
15/11/2024 17:15	43	52	40	45	56	50	43	38	39	33	24
15/11/2024 17:30	42	50	40	44	56	49	41	38	38	32	23
15/11/2024 17:45	45	62	39	45	54	47	40	42	41	37	28
15/11/2024 18:00	44	64	40	46	54	48	43	42	40	35	26
15/11/2024 18:15	44	60	41	45	57	49	41	40	41	35	26
15/11/2024 18:30	43	59	40	43	55	48	40	40	40	32	23
15/11/2024 18:45	42	49	41	43	56	47	41	38	39	31	21
15/11/2024 19:00	43	59	39	45	56	49	45	40	38	30	20
15/11/2024 19:15	42	58	40	43	55	50	42	39	38	31	21
15/11/2024 19:30	42	49	40	43	55	48	41	39	38	30	19
15/11/2024 19:45	41	52	38	43	54	47	43	38	37	29	19
15/11/2024 20:00	42	54	38	44	54	48	42	40	38	31	23
15/11/2024 20:15	53	71	41	55	61	54	52	52	48	42	32
15/11/2024 20:30	45	62	40	47	56	48	42	45	41	32	20
15/11/2024 20:45	45	60	39	49	55	48	43	45	41	34	24
15/11/2024 21:00	41	51	39	43	55	48	40	37	38	30	21
15/11/2024 21:15	42	55	37	42	53	48	44	39	37	29	19

Table A.2 – Measured Sound Levels at LT2

Period start	Broadband Sound Levels, dBA				Octave Band Sound Levels, dB Leq						
	Leq	Lmax	L90	L10	63H z	125H z	250H z	500H z	1Kh z	2KH Z	4KH z
15/11/2024 21:30	41	53	36	41	51	45	41	39	36	31	20
15/11/2024 21:45	42	54	37	44	53	48	45	40	37	27	16
15/11/2024 22:00	39	47	37	40	52	45	38	36	35	27	17
15/11/2024 22:15	42	56	36	46	52	47	44	42	36	27	21
15/11/2024 22:30	42	56	36	45	51	46	43	41	36	26	14
15/11/2024 22:45	40	50	36	41	52	46	40	38	35	25	14
15/11/2024 23:00	38	47	36	40	51	44	37	35	35	27	15
15/11/2024 23:15	38	51	36	39	52	45	36	34	35	27	17
15/11/2024 23:30	37	41	35	38	51	44	36	33	33	24	14
15/11/2024 23:45	40	62	34	38	51	44	38	38	35	31	24
16/11/2024 00:00	38	54	34	39	52	44	39	37	33	25	16
16/11/2024 00:15	35	50	32	36	50	43	34	30	31	25	16
16/11/2024 00:30	34	43	32	35	49	42	34	30	29	22	14
16/11/2024 00:45	35	46	32	36	50	44	34	31	30	23	14
16/11/2024 01:00	33	39	31	34	48	42	32	29	29	22	13
16/11/2024 01:15	35	41	31	38	49	42	36	31	30	23	15
16/11/2024 01:30	37	46	31	42	48	42	39	34	32	24	15
16/11/2024 01:45	32	44	30	34	48	40	32	29	28	20	13
16/11/2024 02:00	32	37	30	33	47	39	31	28	28	20	14
16/11/2024 02:15	32	43	31	33	47	40	31	29	28	21	15
16/11/2024 02:30	32	37	31	33	46	40	31	29	28	21	14
16/11/2024 02:45	32	41	30	34	47	40	32	29	28	20	14
16/11/2024 03:00	31	35	30	32	44	38	30	28	28	20	13
16/11/2024 03:15	33	40	31	35	47	42	34	30	29	20	15

Table A.2 – Measured Sound Levels at LT2

Period start	Broadband Sound Levels, dBA				Octave Band Sound Levels, dB Leq						
	Leq	Lmax	L90	L10	63H z	125H z	250H z	500H z	1Kh z	2KH Z	4KH z
16/11/2024 03:30	34	49	31	35	46	43	32	30	29	24	20
16/11/2024 03:45	34	48	30	36	46	39	32	29	30	25	24
16/11/2024 04:00	33	42	30	34	43	37	30	28	28	22	24
16/11/2024 04:15	33	44	31	35	45	40	33	30	28	21	20
16/11/2024 04:30	33	38	31	35	45	39	31	29	29	21	24
16/11/2024 04:45	35	45	32	37	45	42	35	30	30	24	21
16/11/2024 05:00	36	51	32	38	55	46	37	30	31	25	19
16/11/2024 05:15	38	53	32	40	57	48	40	32	31	26	21
16/11/2024 05:30	38	52	33	40	55	47	38	33	33	28	23
16/11/2024 05:45	39	51	34	41	57	48	40	34	33	27	21
16/11/2024 06:00	42	58	35	44	58	49	42	36	37	32	27
16/11/2024 06:15	41	53	36	44	57	49	43	38	35	29	22
16/11/2024 06:30	45	59	37	47	57	51	48	43	36	30	22
16/11/2024 06:45	43	58	37	46	58	50	45	40	38	32	24
16/11/2024 07:00	43	55	37	46	58	50	45	39	38	32	23
16/11/2024 07:15	43	56	38	46	57	49	43	39	39	35	30
16/11/2024 07:30	46	60	39	49	57	49	43	38	42	41	35
16/11/2024 07:45	45	57	40	48	58	50	45	42	40	38	31
16/11/2024 08:00	49	72	40	51	56	52	50	46	44	40	31
16/11/2024 08:15	43	54	40	45	58	50	42	38	39	33	26
16/11/2024 08:30	45	62	42	46	59	50	45	41	41	35	27
16/11/2024 08:45	47	62	42	49	58	51	44	41	42	41	31
16/11/2024 09:00	47	56	42	48	59	52	44	41	42	39	33
16/11/2024 09:15	48	57	45	51	58	54	45	44	45	41	35

Table A.2 – Measured Sound Levels at LT2

Period start	Broadband Sound Levels, dBA				Octave Band Sound Levels, dB Leq						
	Leq	Lmax	L90	L10	63H z	125H z	250H z	500H z	1Kh z	2KH Z	4KH z
16/11/2024 09:30	48	57	45	50	58	51	47	43	44	40	34
16/11/2024 09:45	48	57	44	52	56	49	42	43	45	41	33
16/11/2024 10:00	48	67	45	49	57	50	45	45	45	40	35
16/11/2024 10:15	48	60	45	50	59	52	47	45	44	40	33
16/11/2024 10:30	47	59	44	48	57	49	43	42	43	40	34
16/11/2024 10:45	47	57	43	49	56	48	44	42	43	39	31
16/11/2024 11:00	46	58	43	48	57	49	40	40	43	39	33
16/11/2024 11:15	47	58	44	49	57	49	42	41	44	40	33
16/11/2024 11:30	49	67	44	50	57	49	45	45	46	42	36
16/11/2024 11:45	47	59	44	49	55	49	42	42	44	39	32
16/11/2024 12:00	47	66	43	48	57	52	45	42	43	39	32
16/11/2024 12:15	45	53	43	47	57	49	43	40	41	37	30
16/11/2024 12:30	45	54	43	46	58	50	44	40	41	36	29
16/11/2024 12:45	47	57	43	49	59	52	47	43	42	37	29
16/11/2024 13:00	47	60	42	49	58	51	45	41	43	38	32
16/11/2024 13:15	50	71	42	46	55	47	40	38	45	45	40
16/11/2024 13:30	47	56	43	49	59	52	45	42	43	38	30
16/11/2024 13:45	48	66	44	51	62	53	45	44	45	40	29
16/11/2024 14:00	48	66	43	50	61	54	46	44	43	39	29
16/11/2024 14:15	49	70	43	49	60	55	50	47	44	39	30
16/11/2024 14:30	47	57	44	50	62	54	46	42	44	39	29
16/11/2024 14:45	48	60	43	52	59	53	48	44	45	39	29
16/11/2024 15:00	46	56	43	47	58	50	41	41	43	38	29
16/11/2024 15:15	45	53	42	47	55	48	41	41	42	36	27

Table A.2 – Measured Sound Levels at LT2

Period start	Broadband Sound Levels, dBA				Octave Band Sound Levels, dB Leq						
	Leq	Lmax	L90	L10	63H z	125H z	250H z	500H z	1Kh z	2KH Z	4KH z
16/11/2024 15:30	48	62	42	49	58	49	45	45	44	38	32
16/11/2024 15:45	48	58	43	51	57	51	44	44	45	39	30
16/11/2024 16:00	46	63	42	47	57	48	41	42	43	37	29
16/11/2024 16:15	47	65	43	49	58	49	43	43	45	39	29
16/11/2024 16:30	46	65	42	47	55	47	42	42	43	37	27
16/11/2024 16:45	46	59	42	49	55	47	42	42	44	37	22
16/11/2024 17:00	44	55	42	46	57	49	40	40	42	35	24
16/11/2024 17:15	48	62	43	50	60	52	44	44	45	39	27
16/11/2024 17:30	51	66	43	48	61	52	45	41	42	48	31
16/11/2024 17:45	47	59	43	49	55	49	45	43	44	38	24
16/11/2024 18:00	46	59	42	48	54	47	41	43	44	37	24
16/11/2024 18:15	46	60	42	47	56	49	43	43	43	35	25
16/11/2024 18:30	47	62	42	48	56	49	43	43	43	37	27
16/11/2024 18:45	48	67	43	50	57	52	49	47	44	36	25
16/11/2024 19:00	50	66	42	51	56	51	50	49	44	39	31
16/11/2024 19:15	49	69	43	49	60	52	46	46	46	38	28
16/11/2024 19:30	52	71	43	52	59	51	46	48	49	43	33
16/11/2024 19:45	50	73	43	52	56	53	46	49	46	40	31
16/11/2024 20:00	46	63	42	49	56	52	48	44	42	35	25
16/11/2024 20:15	46	62	41	48	58	50	44	42	43	37	25
16/11/2024 20:30	46	57	41	49	57	52	49	43	39	33	22
16/11/2024 20:45	44	58	40	45	55	48	41	40	42	35	22
16/11/2024 21:00	42	56	38	44	56	47	38	38	39	33	20
16/11/2024 21:15	47	60	40	51	61	52	44	42	42	39	35

Table A.2 – Measured Sound Levels at LT2

Period start	Broadband Sound Levels, dBA				Octave Band Sound Levels, dB Leq						
	Leq	Lmax	L90	L10	63H z	125H z	250H z	500H z	1Kh z	2KH Z	4KH z
16/11/2024 21:30	42	57	39	44	55	47	39	38	39	33	25
16/11/2024 21:45	48	64	40	51	64	56	48	44	43	38	30
16/11/2024 22:00	46	66	40	47	53	46	40	40	43	38	31
16/11/2024 22:15	42	53	39	44	55	47	38	38	39	34	25
16/11/2024 22:30	43	57	39	45	60	51	43	37	38	32	24
16/11/2024 22:45	46	65	40	48	59	50	43	44	42	36	25
16/11/2024 23:00	45	64	38	47	62	54	45	40	40	32	25
16/11/2024 23:15	43	57	38	45	61	51	43	38	38	32	25
16/11/2024 23:30	43	64	36	44	61	53	45	39	37	30	24
16/11/2024 23:45	43	55	37	46	61	52	45	38	37	31	23
17/11/2024 00:00	44	64	38	47	62	54	45	39	38	31	24
17/11/2024 00:15	43	54	37	46	60	51	43	38	37	30	23
17/11/2024 00:30	41	60	36	43	60	51	42	36	36	29	22
17/11/2024 00:45	39	46	36	41	54	45	37	35	36	27	19
17/11/2024 01:00	38	50	35	40	52	45	42	34	34	26	18
17/11/2024 01:15	38	52	35	39	52	44	34	33	34	28	21
17/11/2024 01:30	39	56	34	41	55	46	37	35	35	27	20
17/11/2024 01:45	38	51	34	38	55	46	38	33	33	24	17
17/11/2024 02:00	44	58	37	47	63	54	46	39	35	29	26
17/11/2024 02:15	38	48	35	39	52	45	36	34	34	24	19
17/11/2024 02:30	36	40	34	37	47	38	32	34	33	22	15
17/11/2024 02:45	41	58	34	43	60	51	43	36	34	28	26
17/11/2024 03:00	45	59	35	48	63	54	48	40	36	31	29
17/11/2024 03:15	36	45	34	38	47	40	33	34	33	22	15

Table A.2 – Measured Sound Levels at LT2

Period start	Broadband Sound Levels, dBA				Octave Band Sound Levels, dB Leq						
	Leq	Lmax	L90	L10	63H z	125H z	250H z	500H z	1Kh z	2KH Z	4KH z
17/11/2024 03:30	36	42	35	37	48	39	33	34	34	21	15
17/11/2024 03:45	36	41	33	37	46	38	31	33	33	21	17
17/11/2024 04:00	48	64	33	51	49	55	55	44	34	25	17
17/11/2024 04:15	36	50	33	38	45	38	38	34	31	23	17
17/11/2024 04:30	35	43	32	36	49	41	33	31	31	22	17
17/11/2024 04:45	42	58	35	45	51	45	45	42	33	23	20
17/11/2024 05:00	37	43	36	38	48	40	32	35	35	23	15
17/11/2024 05:15	48	63	36	50	49	51	54	46	35	24	15
17/11/2024 05:30	39	48	36	41	47	49	39	37	35	24	16
17/11/2024 05:45	41	57	36	43	47	42	45	39	35	26	19
17/11/2024 06:00	40	53	36	42	48	43	42	37	35	27	20
17/11/2024 06:15	43	54	37	46	50	48	46	41	36	27	20
17/11/2024 06:30	42	54	38	44	54	49	45	39	38	28	20
17/11/2024 06:45	44	55	40	46	51	46	46	41	39	29	21
17/11/2024 07:00	43	51	41	45	52	46	43	41	40	29	24
17/11/2024 07:15	43	55	40	45	51	43	42	40	40	33	28
17/11/2024 07:30	44	65	40	45	51	46	42	41	40	37	27
17/11/2024 07:45	46	56	41	49	52	48	49	44	40	34	28
17/11/2024 08:00	44	56	41	46	51	45	44	41	40	35	30
17/11/2024 08:15	44	59	40	45	52	46	43	40	40	34	32
17/11/2024 08:30	46	58	40	50	53	49	49	44	40	37	33
17/11/2024 08:45	42	52	40	44	53	46	42	40	39	31	27
17/11/2024 09:00	46	62	41	49	52	50	52	45	39	31	26
17/11/2024 09:15	48	62	42	50	54	51	51	47	40	32	30

Table A.2 – Measured Sound Levels at LT2

Period start	Broadband Sound Levels, dBA				Octave Band Sound Levels, dB Leq						
	Leq	Lmax	L90	L10	63H z	125H z	250H z	500H z	1Kh z	2KH Z	4KH z
17/11/2024 09:30	46	57	41	49	52	47	46	45	40	34	30
17/11/2024 09:45	47	59	43	48	54	50	48	44	42	37	29
17/11/2024 10:00	44	56	42	46	53	47	41	41	42	35	29
17/11/2024 10:15	47	60	43	48	55	48	48	44	43	36	34
17/11/2024 10:30	48	62	44	51	63	54	50	45	43	37	30
17/11/2024 10:45	47	59	43	50	56	49	48	44	43	38	28
17/11/2024 11:00	48	57	43	51	58	51	48	46	42	37	31
17/11/2024 11:15	46	55	42	48	54	49	46	43	42	35	29
17/11/2024 11:30	43	54	40	45	53	46	42	40	39	33	28
17/11/2024 11:45	47	58	43	49	58	51	46	43	43	38	32
17/11/2024 12:00	47	61	43	49	56	51	47	43	44	38	32
17/11/2024 12:15	49	61	44	52	66	56	50	45	44	40	35
17/11/2024 12:30	50	59	45	52	64	56	51	46	44	40	36
17/11/2024 12:45	49	62	46	52	58	52	47	46	45	42	38
17/11/2024 13:00	49	66	45	50	57	49	43	44	44	41	38
17/11/2024 13:15	48	60	45	50	56	48	41	41	45	41	35
17/11/2024 13:30	48	58	45	50	56	49	45	44	43	40	37
17/11/2024 13:45	46	54	44	48	55	48	42	42	43	38	32
17/11/2024 14:00	52	66	44	57	55	49	49	46	47	46	44
17/11/2024 14:15	52	70	45	54	55	49	44	46	48	46	44
17/11/2024 14:30	51	63	47	53	56	47	44	43	46	45	42
17/11/2024 14:45	48	57	46	49	56	49	44	43	44	41	36
17/11/2024 15:00	49	59	46	51	60	49	48	44	45	42	39
17/11/2024 15:15	48	57	46	50	59	49	45	43	44	41	38

Table A.2 – Measured Sound Levels at LT2

Period start	Broadband Sound Levels, dBA				Octave Band Sound Levels, dB Leq						
	Leq	Lmax	L90	L10	63H z	125H z	250H z	500H z	1Kh z	2KH Z	4KH z
17/11/2024 15:30	52	64	48	54	57	53	50	49	47	44	42
17/11/2024 15:45	50	59	47	52	57	49	43	44	46	44	41
17/11/2024 16:00	52	69	46	49	58	53	49	48	48	43	37
17/11/2024 16:15	48	59	45	50	56	51	47	44	44	39	34
17/11/2024 16:30	47	59	45	50	55	50	46	44	44	38	33
17/11/2024 16:45	47	57	44	49	55	50	45	44	43	38	31
17/11/2024 17:00	48	56	45	50	57	50	47	43	44	39	33
17/11/2024 17:15	49	55	46	50	56	49	45	44	46	39	33
17/11/2024 17:30	49	57	47	51	56	52	46	45	47	38	31
17/11/2024 17:45	49	57	47	50	55	50	45	44	47	39	28
17/11/2024 18:00	48	55	47	50	56	50	46	45	46	36	26
17/11/2024 18:15	50	62	48	50	56	50	47	47	48	36	27
17/11/2024 18:30	48	56	47	49	57	49	43	44	47	35	27
17/11/2024 18:45	48	54	47	50	56	52	44	43	46	36	27
17/11/2024 19:00	48	60	46	50	57	51	46	46	45	35	25
17/11/2024 19:15	47	59	44	48	55	49	45	46	43	31	24
17/11/2024 19:30	45	56	43	47	55	49	43	43	42	31	23
17/11/2024 19:45	45	57	43	46	54	53	46	42	42	30	22
17/11/2024 20:00	46	60	42	47	54	53	47	45	41	30	21
17/11/2024 20:15	43	49	42	45	53	46	42	40	41	30	21
17/11/2024 20:30	43	62	40	43	53	47	41	41	40	32	25
17/11/2024 20:45	43	54	40	44	53	48	44	40	39	29	22
17/11/2024 21:00	42	52	39	44	53	47	42	39	38	31	26
17/11/2024 21:15	50	61	46	53	52	47	45	43	44	44	44

Table A.2 – Measured Sound Levels at LT2

Period start	Broadband Sound Levels, dBA				Octave Band Sound Levels, dB Leq						
	Leq	Lmax	L90	L10	63H z	125H z	250H z	500H z	1Kh z	2KH Z	4KH z
17/11/2024 21:30	45	55	39	48	52	46	41	40	39	38	37
17/11/2024 21:45	44	57	37	46	52	50	46	43	37	30	28
17/11/2024 22:00	39	45	38	41	51	44	37	36	36	29	26
17/11/2024 22:15	41	45	39	42	51	44	40	38	38	29	24
17/11/2024 22:30	42	52	40	43	51	46	42	40	39	28	22
17/11/2024 22:45	41	45	39	42	50	45	38	38	38	28	24
17/11/2024 23:00	43	57	40	45	49	42	36	37	39	36	34
17/11/2024 23:15	42	58	37	42	51	45	41	41	37	31	27
17/11/2024 23:30	42	56	38	44	51	45	45	41	36	28	24
17/11/2024 23:45	41	53	38	43	50	43	39	40	37	28	23
18/11/2024 00:00	41	57	36	41	50	43	41	41	36	26	20
18/11/2024 00:15	38	43	36	39	49	43	35	35	35	25	20
18/11/2024 00:30	38	46	36	40	48	41	35	35	35	28	26
18/11/2024 00:45	36	42	34	38	47	39	32	33	33	24	20
18/11/2024 01:00	37	44	34	38	47	40	35	35	34	23	18
18/11/2024 01:15	37	46	35	40	48	39	32	34	34	27	23
18/11/2024 01:30	40	55	35	41	48	50	42	35	34	26	24
18/11/2024 01:45	39	52	36	41	46	42	33	35	36	28	27
18/11/2024 02:00	40	48	37	42	47	42	33	36	38	28	26
18/11/2024 02:15	39	46	37	41	48	41	33	36	37	25	22
18/11/2024 02:30	41	51	38	43	48	41	35	37	40	27	22
18/11/2024 02:45	39	48	35	41	46	39	32	34	37	26	20
18/11/2024 03:00	38	45	35	40	47	38	31	35	35	25	20
18/11/2024 03:15	42	59	36	42	48	42	39	39	38	31	32

Table A.2 – Measured Sound Levels at LT2

Period start	Broadband Sound Levels, dBA				Octave Band Sound Levels, dB Leq						
	Leq	Lmax	L90	L10	63H z	125H z	250H z	500H z	1Kh z	2KH Z	4KH z
18/11/2024 03:30	42	55	39	44	49	43	36	39	40	29	25
18/11/2024 03:45	44	62	40	44	48	43	39	42	42	31	27
18/11/2024 04:00	44	51	41	46	48	45	42	39	42	29	21
18/11/2024 04:15	45	55	42	47	49	42	35	39	44	31	20
18/11/2024 04:30	45	51	42	46	50	44	41	41	43	29	22
18/11/2024 04:45	44	50	41	46	50	43	35	39	43	29	22
18/11/2024 05:00	58	67	44	64	50	44	36	42	45	56	35
18/11/2024 05:15	63	68	49	66	51	46	43	43	47	62	40
18/11/2024 05:30	52	58	49	54	53	48	42	46	52	40	25
18/11/2024 05:45	54	60	52	55	56	50	45	48	52	41	26
18/11/2024 06:00	53	58	51	54	56	50	48	48	51	40	26
18/11/2024 06:15	54	59	52	56	55	51	47	49	53	41	26
18/11/2024 06:30	55	59	53	57	57	52	48	49	54	43	29
18/11/2024 06:45	56	62	54	57	56	51	45	51	55	44	28
18/11/2024 07:00	55	60	53	57	58	52	47	50	53	43	27
18/11/2024 07:15	56	61	54	57	58	51	47	51	54	45	32
18/11/2024 07:30	56	59	54	57	59	53	47	51	54	44	32
18/11/2024 07:45	56	71	53	57	60	55	53	53	54	44	32
18/11/2024 08:00	55	70	52	55	60	55	51	51	53	40	29
18/11/2024 08:15	55	68	51	56	60	60	53	52	52	40	34
18/11/2024 08:30	54	59	53	55	60	53	49	49	53	40	28
18/11/2024 08:45	55	61	53	56	61	54	49	51	53	41	28
18/11/2024 09:00	55	63	54	57	60	53	48	50	54	41	28
18/11/2024 09:15	55	59	54	57	60	55	50	51	54	42	28

Table A.2 – Measured Sound Levels at LT2

Period start	Broadband Sound Levels, dBA				Octave Band Sound Levels, dB Leq						
	Leq	Lmax	L90	L10	63H z	125H z	250H z	500H z	1Kh z	2KH Z	4KH z
18/11/2024 09:30	56	60	54	57	59	54	49	51	55	42	27
18/11/2024 09:45	57	73	53	56	62	57	55	55	54	42	29
18/11/2024 10:00	56	60	54	57	61	55	51	51	54	42	29
18/11/2024 10:15	54	65	50	54	60	55	52	52	51	36	26
18/11/2024 10:30	50	57	48	51	58	51	44	47	48	35	25
18/11/2024 10:45	51	64	46	52	60	55	53	50	47	35	28
18/11/2024 11:00	46	55	44	48	57	51	44	41	44	35	28
18/11/2024 11:15	53	73	45	50	60	58	56	50	47	38	30
18/11/2024 11:30	50	61	45	51	58	52	50	48	46	36	26
18/11/2024 11:45	54	69	44	54	58	59	60	51	46	41	33
18/11/2024 12:00	48	57	44	50	58	51	47	44	45	35	26
18/11/2024 12:15	49	59	44	52	58	56	52	45	44	35	27
18/11/2024 12:30	47	58	44	49	56	51	46	43	45	36	30
18/11/2024 12:45	51	68	45	52	57	52	51	48	47	41	35
18/11/2024 13:00	48	57	45	49	55	49	44	42	46	39	33
18/11/2024 13:15	48	57	46	50	56	50	44	44	47	37	28
18/11/2024 13:30	54	73	46	52	57	60	55	53	50	42	32
18/11/2024 13:45	52	67	46	52	59	56	50	49	48	41	29
18/11/2024 14:00	50	56	48	52	57	51	47	45	48	39	31
18/11/2024 14:15	51	62	49	52	57	52	50	47	49	40	32
18/11/2024 14:30	50	55	48	51	57	50	44	43	48	39	34
18/11/2024 14:45	51	64	48	53	59	54	52	48	48	40	34
18/11/2024 15:00	51	60	47	53	59	54	51	47	48	39	33
18/11/2024 15:15	52	65	49	54	60	53	47	48	50	41	36

Table A.2 – Measured Sound Levels at LT2

Period start	Broadband Sound Levels, dBA				Octave Band Sound Levels, dB Leq						
	Leq	Lmax	L90	L10	63H z	125H z	250H z	500H z	1Kh z	2KH Z	4KH z
18/11/2024 15:30	49	58	46	51	58	53	47	45	47	38	31
18/11/2024 15:45	57	75	48	57	61	61	60	54	52	47	38
18/11/2024 16:00	50	59	48	51	56	50	45	44	48	39	32
18/11/2024 16:15	53	67	49	54	59	54	52	50	50	39	29
18/11/2024 16:30	50	55	49	52	55	49	45	44	49	40	28
18/11/2024 16:45	51	59	49	52	55	50	45	46	49	39	30
18/11/2024 17:00	51	55	49	52	56	50	44	45	49	40	31
18/11/2024 17:15	51	57	49	52	56	49	43	45	49	41	35
18/11/2024 17:30	51	55	49	52	56	49	45	45	49	42	37
18/11/2024 17:45	51	56	50	53	56	51	45	47	49	42	37
18/11/2024 18:00	53	66	50	54	57	51	48	49	50	43	38
18/11/2024 18:15	53	65	50	54	59	57	55	50	49	44	39
18/11/2024 18:30	54	73	49	53	57	58	53	52	50	45	38
18/11/2024 18:45	51	55	49	52	57	50	44	46	49	43	37
18/11/2024 19:00	52	63	49	53	58	51	49	48	49	43	37
18/11/2024 19:15	51	62	49	53	59	52	46	47	48	43	37
18/11/2024 19:30	50	55	48	52	58	51	45	46	47	41	36
18/11/2024 19:45	51	59	48	52	61	54	47	46	47	42	37
18/11/2024 20:00	55	69	50	55	62	58	55	53	50	45	38
18/11/2024 20:15	51	60	50	53	61	54	48	47	48	43	38
18/11/2024 20:30	51	60	49	52	59	52	46	47	48	41	36
18/11/2024 20:45	50	56	48	52	58	51	45	47	47	40	35
18/11/2024 21:00	50	55	48	52	57	50	43	47	47	40	34
18/11/2024 21:15	51	60	48	52	57	50	43	47	47	42	36

Table A.2 – Measured Sound Levels at LT2

Period start	Broadband Sound Levels, dBA				Octave Band Sound Levels, dB Leq						
	Leq	Lmax	L90	L10	63H z	125H z	250H z	500H z	1Kh z	2KH Z	4KH z
18/11/2024 21:30	51	64	49	52	58	50	44	47	48	43	35
18/11/2024 21:45	50	54	48	52	57	50	46	47	47	39	33
18/11/2024 22:00	50	58	47	52	58	53	47	47	47	39	32
18/11/2024 22:15	50	55	48	51	58	53	47	46	47	39	32
18/11/2024 22:30	52	64	47	54	62	59	55	49	47	40	35
18/11/2024 22:45	51	67	47	53	61	59	54	48	47	38	32
18/11/2024 23:00	54	68	47	57	64	62	58	51	47	39	33
18/11/2024 23:15	52	64	47	56	63	60	56	50	46	36	31
18/11/2024 23:30	52	63	45	55	63	60	56	49	45	35	29
18/11/2024 23:45	50	58	47	53	61	57	51	47	47	38	30
19/11/2024 00:00	49	61	44	52	60	56	51	47	45	36	30
19/11/2024 00:15	48	60	42	51	60	55	51	45	42	32	25
19/11/2024 00:30	47	60	42	49	60	55	51	45	41	31	26
19/11/2024 00:45	46	56	41	48	59	54	48	43	41	30	24
19/11/2024 01:00	45	53	42	47	57	51	45	43	41	29	22
19/11/2024 01:15	44	54	42	46	56	49	43	42	41	29	22
19/11/2024 01:30	43	48	40	45	55	47	39	41	40	27	22
19/11/2024 01:45	42	51	39	44	52	45	37	40	39	24	20
19/11/2024 02:00	42	52	39	43	51	44	36	40	39	24	21
19/11/2024 02:15	43	50	40	44	52	45	37	40	40	25	20
19/11/2024 02:30	43	53	39	44	50	45	41	41	40	25	20
19/11/2024 02:45	43	49	39	45	51	44	36	41	40	26	25
19/11/2024 03:00	42	49	40	44	52	46	38	40	39	31	26
19/11/2024 03:15	42	49	40	44	51	44	37	40	39	31	22

Table A.2 – Measured Sound Levels at LT2

Period start	Broadband Sound Levels, dBA				Octave Band Sound Levels, dB Leq						
	Leq	Lmax	L90	L10	63H z	125H z	250H z	500H z	1Kh z	2KH Z	4KH z
19/11/2024 03:30	43	50	40	45	51	44	36	41	41	27	21
19/11/2024 03:45	42	50	39	44	51	44	36	40	40	27	20
19/11/2024 04:00	43	50	41	45	51	43	39	41	41	30	23
19/11/2024 04:15	43	50	41	45	51	43	35	41	41	29	21
19/11/2024 04:30	43	49	41	45	51	44	39	41	41	28	22
19/11/2024 04:45	44	51	42	46	52	43	37	42	42	29	21
19/11/2024 05:00	45	51	43	47	52	44	38	42	44	31	23
19/11/2024 05:15	47	53	44	49	52	43	39	44	45	33	25
19/11/2024 05:30	51	55	49	52	55	47	45	48	49	36	26
19/11/2024 05:45	51	55	50	52	56	48	46	48	49	37	29
19/11/2024 06:00	51	56	49	52	55	47	45	47	49	37	29
19/11/2024 06:15	51	55	49	53	56	46	43	48	49	36	28
19/11/2024 06:30	53	69	51	54	58	50	49	52	51	38	28
19/11/2024 06:45	55	61	53	56	59	51	51	53	53	39	28
19/11/2024 07:00	54	58	53	55	59	50	49	52	53	38	28
19/11/2024 07:15	52	59	51	54	58	50	46	50	51	37	28
19/11/2024 07:30	51	56	49	52	59	50	49	49	48	37	30
19/11/2024 07:45	54	60	51	55	61	52	50	51	52	39	29
19/11/2024 08:00	55	69	52	55	61	52	52	52	53	41	31
19/11/2024 08:15	53	56	52	54	61	51	47	51	51	38	29
19/11/2024 08:30	53	60	52	54	61	52	52	51	51	39	30
19/11/2024 08:45	58	81	52	55	61	51	48	52	54	52	42
19/11/2024 09:00	54	65	53	54	62	54	50	53	52	41	32
19/11/2024 09:15	54	62	53	55	61	52	49	52	52	40	33

Table A.2 – Measured Sound Levels at LT2

Period start	Broadband Sound Levels, dBA				Octave Band Sound Levels, dB Leq						
	Leq	Lmax	L90	L10	63H z	125H z	250H z	500H z	1Kh z	2KH Z	4KH z
19/11/2024 09:30	53	61	52	54	61	53	51	51	51	37	28
19/11/2024 09:45	52	60	50	53	60	52	48	50	49	39	31
19/11/2024 10:00	52	59	50	53	60	53	46	50	49	38	31
19/11/2024 10:15	52	62	50	54	61	53	53	51	49	36	28
19/11/2024 10:30	53	66	50	52	60	54	50	51	49	40	33
19/11/2024 10:45	52	57	50	53	60	52	46	50	49	39	31
19/11/2024 11:00	50	55	49	52	61	53	48	49	47	37	29
19/11/2024 11:15	52	63	49	52	61	54	50	50	48	37	28
19/11/2024 11:30	51	57	49	51	60	52	47	49	48	38	28
19/11/2024 11:45	52	64	49	53	60	56	50	51	48	38	29
19/11/2024 12:00	51	61	49	51	60	52	50	50	47	37	28
19/11/2024 12:15	51	59	50	52	60	51	45	49	48	38	28

Table A.3 – Measured Sound Levels at LT3

Period start	Broadband Sound Levels, dBA				Octave Band Sound Levels, dB Leq						
	Leq	Lmax	L90	L10	63H z	125H z	250H z	500H z	1Kh z	2KH Z	4KH z
15/11/2024 14:30	53	72	49	56	61	56	54	49	50	44	36
15/11/2024 14:45	53	64	50	55	61	57	54	48	50	45	36
15/11/2024 15:00	53	60	49	55	61	56	54	48	50	44	34
15/11/2024 15:15	53	63	49	55	60	57	54	47	50	44	34
15/11/2024 15:30	53	67	50	55	60	56	54	47	50	45	34
15/11/2024 15:45	52	61	48	54	59	55	53	47	49	43	32
15/11/2024 16:00	53	64	49	55	60	56	54	46	49	44	34
15/11/2024 16:15	53	66	50	55	59	57	54	47	50	44	32

Table A.3 – Measured Sound Levels at LT3

Period start	Broadband Sound Levels, dBA				Octave Band Sound Levels, dB Leq						
	Leq	Lmax	L90	L10	63H z	125H z	250H z	500H z	1Kh z	2KH Z	4KH z
15/11/2024 16:30	52	61	48	54	58	54	53	46	49	44	37
15/11/2024 16:45	53	72	49	55	59	55	53	47	50	45	42
15/11/2024 17:00	54	68	51	57	60	56	53	48	52	46	40
15/11/2024 17:15	56	69	52	59	58	55	53	52	54	48	42
15/11/2024 17:30	58	74	52	61	58	56	53	55	55	49	44
15/11/2024 17:45	58	77	53	61	59	59	54	53	55	51	46
15/11/2024 18:00	58	78	52	61	58	57	53	51	56	49	43
15/11/2024 18:15	59	79	53	63	58	55	53	54	57	50	44
15/11/2024 18:30	64	87	54	66	61	62	56	58	61	54	53
15/11/2024 18:45	66	89	57	69	61	61	58	62	63	56	54
15/11/2024 19:00	66	95	53	67	64	65	58	61	63	57	58
15/11/2024 19:15	74	97	54	78	57	57	59	69	73	63	55
15/11/2024 19:30	73	91	56	78	58	58	60	69	72	63	56
15/11/2024 19:45	71	94	54	75	59	58	57	67	69	61	54
15/11/2024 20:00	72	93	55	76	61	58	58	66	70	62	53
15/11/2024 20:15	71	93	54	74	59	58	57	65	70	61	53
15/11/2024 20:30	66	88	48	69	57	54	56	62	64	57	50
15/11/2024 20:45	50	71	45	52	55	50	48	45	47	41	37
15/11/2024 21:00	47	57	43	50	54	49	48	44	44	37	27
15/11/2024 21:15	47	58	43	51	53	48	47	44	45	37	27
15/11/2024 21:30	49	61	45	52	55	51	49	47	46	38	27
15/11/2024 21:45	46	57	42	49	54	47	46	43	44	36	26
15/11/2024 22:00	48	65	41	51	54	49	47	46	45	36	26
15/11/2024 22:15	47	56	41	51	53	48	48	44	43	37	27

Table A.3 – Measured Sound Levels at LT3

Period start	Broadband Sound Levels, dBA				Octave Band Sound Levels, dB Leq						
	Leq	Lmax	L90	L10	63H z	125H z	250H z	500H z	1Kh z	2KH Z	4KH z
15/11/2024 22:30	46	59	42	50	54	48	47	43	43	36	26
15/11/2024 22:45	47	57	42	51	53	47	46	43	45	38	27
15/11/2024 23:00	47	62	43	50	54	48	46	43	45	39	28
15/11/2024 23:15	45	55	41	49	53	46	44	41	43	36	26
15/11/2024 23:30	44	54	39	48	52	45	43	39	41	35	26
15/11/2024 23:45	44	57	39	48	52	46	44	42	41	35	26
16/11/2024 00:00	43	56	37	46	52	46	42	38	40	34	25
16/11/2024 00:15	41	54	37	43	50	42	40	37	38	32	24
16/11/2024 00:30	42	52	37	46	51	45	42	37	39	32	25
16/11/2024 00:45	41	52	36	46	49	42	40	38	38	32	24
16/11/2024 01:00	42	55	35	47	51	45	42	40	38	30	24
16/11/2024 01:15	44	56	34	50	50	45	44	43	40	33	25
16/11/2024 01:30	39	56	34	42	49	42	38	37	36	30	24
16/11/2024 01:45	39	51	34	40	50	42	38	35	35	30	24
16/11/2024 02:00	37	48	34	38	49	43	37	35	33	25	23
16/11/2024 02:15	40	57	34	40	51	44	40	35	37	31	25
16/11/2024 02:30	39	55	34	39	49	43	39	35	36	30	24
16/11/2024 02:45	37	53	34	37	47	40	37	35	34	27	23
16/11/2024 03:00	38	51	35	39	49	42	38	35	34	28	24
16/11/2024 03:15	40	58	35	42	49	43	38	36	37	32	28
16/11/2024 03:30	41	58	35	44	49	42	38	37	38	32	27
16/11/2024 03:45	36	52	34	37	46	39	33	34	33	24	26
16/11/2024 04:00	38	51	35	39	48	43	37	36	35	28	28
16/11/2024 04:15	39	50	36	41	47	41	36	37	35	27	28

Table A.3 – Measured Sound Levels at LT3

Period start	Broadband Sound Levels, dBA				Octave Band Sound Levels, dB Leq						
	Leq	Lmax	L90	L10	63H z	125H z	250H z	500H z	1Kh z	2KH Z	4KH z
16/11/2024 04:30	40	54	36	42	48	42	39	36	37	31	29
16/11/2024 04:45	39	52	34	40	47	41	37	35	35	31	27
16/11/2024 05:00	42	55	35	46	50	47	43	37	38	33	29
16/11/2024 05:15	43	57	37	47	52	46	43	38	39	35	32
16/11/2024 05:30	45	57	38	49	51	47	45	39	42	37	34
16/11/2024 05:45	45	61	38	48	51	47	45	40	42	36	34
16/11/2024 06:00	45	59	39	49	53	49	46	41	42	37	31
16/11/2024 06:15	48	64	40	52	56	53	51	46	44	38	33
16/11/2024 06:30	47	58	39	50	56	52	48	44	42	36	32
16/11/2024 06:45	48	57	41	51	54	51	48	44	44	39	32
16/11/2024 07:00	49	63	42	52	55	52	49	45	45	40	33
16/11/2024 07:15	48	64	41	51	56	51	48	45	43	39	35
16/11/2024 07:30	52	78	43	52	56	52	49	44	45	49	38
16/11/2024 07:45	50	64	44	54	58	55	52	48	46	41	36
16/11/2024 08:00	50	66	43	54	58	57	51	44	47	43	37
16/11/2024 08:15	64	83	53	67	58	56	54	59	61	57	53
16/11/2024 08:30	70	92	60	74	58	56	58	63	68	64	59
16/11/2024 08:45	71	90	59	74	57	56	57	63	67	65	61
16/11/2024 09:00	69	89	59	73	57	55	56	63	66	62	60
16/11/2024 09:15	68	89	58	70	58	57	56	62	64	61	57
16/11/2024 09:30	67	92	57	70	58	57	57	63	63	61	57
16/11/2024 09:45	67	91	59	70	57	56	57	63	63	60	58
16/11/2024 10:00	70	95	57	70	58	57	56	62	68	62	59
16/11/2024 10:15	64	83	55	67	58	57	54	58	60	56	55

Table A.3 – Measured Sound Levels at LT3

Period start	Broadband Sound Levels, dBA				Octave Band Sound Levels, dB Leq						
	Leq	Lmax	L90	L10	63H z	125H z	250H z	500H z	1Kh z	2KH Z	4KH z
16/11/2024 10:30	67	91	55	68	57	56	56	61	64	60	58
16/11/2024 10:45	68	90	55	70	58	57	58	64	65	60	57
16/11/2024 11:00	66	90	57	68	59	58	54	56	62	59	56
16/11/2024 11:15	67	94	57	69	58	58	54	57	64	59	60
16/11/2024 11:30	65	81	56	69	57	55	53	55	63	58	56
16/11/2024 11:45	65	83	56	68	60	58	54	57	62	58	56
16/11/2024 12:00	65	89	56	67	59	57	54	55	61	57	58
16/11/2024 12:15	67	94	56	68	62	61	56	59	64	58	60
16/11/2024 12:30	67	86	58	70	58	58	54	58	63	60	58
16/11/2024 12:45	66	90	57	69	57	55	54	57	62	59	58
16/11/2024 13:00	68	87	58	70	57	56	54	59	64	62	59
16/11/2024 13:15	62	82	52	66	58	57	54	54	58	56	54
16/11/2024 13:30	60	88	50	61	57	59	54	54	57	52	51
16/11/2024 13:45	62	94	52	62	59	61	56	56	58	53	55
16/11/2024 14:00	69	93	55	72	58	57	57	65	67	60	56
16/11/2024 14:15	74	96	56	78	57	58	60	71	72	65	57
16/11/2024 14:30	73	93	56	77	59	59	59	69	71	65	59
16/11/2024 14:45	70	93	51	73	56	56	57	68	68	61	56
16/11/2024 15:00	72	94	54	75	58	57	59	69	70	63	58
16/11/2024 15:15	69	93	53	72	58	57	56	64	67	61	57
16/11/2024 15:30	74	98	55	76	58	60	59	69	71	66	59
16/11/2024 15:45	52	70	44	55	55	52	50	47	49	43	35
16/11/2024 16:00	52	62	45	55	57	52	51	46	49	44	33
16/11/2024 16:15	50	61	44	54	55	51	50	45	48	42	31

Table A.3 – Measured Sound Levels at LT3

Period start	Broadband Sound Levels, dBA				Octave Band Sound Levels, dB Leq						
	Leq	Lmax	L90	L10	63H z	125H z	250H z	500H z	1Kh z	2KH Z	4KH z
16/11/2024 16:30	51	63	43	55	55	50	50	46	49	43	31
16/11/2024 16:45	50	59	43	54	54	51	50	44	48	42	30
16/11/2024 17:00	52	65	44	54	55	51	50	46	49	43	32
16/11/2024 17:15	51	63	43	54	58	54	51	45	48	43	33
16/11/2024 17:30	52	63	45	55	55	51	51	46	50	44	32
16/11/2024 17:45	50	61	43	54	54	50	50	45	48	42	30
16/11/2024 18:00	51	66	44	54	55	51	50	46	48	43	31
16/11/2024 18:15	51	63	44	54	53	51	50	45	48	42	31
16/11/2024 18:30	51	66	44	55	56	54	52	48	48	42	30
16/11/2024 18:45	50	63	42	54	56	54	51	47	47	41	29
16/11/2024 19:00	52	82	43	54	55	55	52	49	49	43	33
16/11/2024 19:15	49	62	44	52	53	49	48	44	46	41	31
16/11/2024 19:30	50	66	43	54	53	54	49	46	47	42	31
16/11/2024 19:45	50	65	43	53	55	52	50	45	46	41	30
16/11/2024 20:00	50	65	42	53	54	51	49	44	47	42	31
16/11/2024 20:15	48	61	41	52	54	53	50	44	45	39	29
16/11/2024 20:30	49	70	41	52	52	49	48	43	46	41	33
16/11/2024 20:45	47	60	40	52	51	47	46	41	45	40	29
16/11/2024 21:00	48	62	40	52	51	47	46	43	45	41	33
16/11/2024 21:15	47	59	40	51	51	47	46	41	44	40	30
16/11/2024 21:30	49	64	41	53	52	50	49	44	46	42	33
16/11/2024 21:45	49	65	41	53	52	47	46	42	46	42	32
16/11/2024 22:00	46	60	40	51	52	47	44	41	43	39	30
16/11/2024 22:15	46	59	40	50	50	46	45	40	44	39	30

Table A.3 – Measured Sound Levels at LT3

Period start	Broadband Sound Levels, dBA				Octave Band Sound Levels, dB Leq						
	Leq	Lmax	L90	L10	63H z	125H z	250H z	500H z	1Kh z	2KH Z	4KH z
16/11/2024 22:30	49	65	40	52	51	47	46	43	46	41	31
16/11/2024 22:45	47	59	39	51	49	46	45	40	44	39	30
16/11/2024 23:00	48	71	39	51	51	47	45	40	45	42	34
16/11/2024 23:15	44	59	37	48	50	48	45	40	41	36	27
16/11/2024 23:30	45	61	38	49	49	46	46	41	42	37	28
16/11/2024 23:45	45	58	38	49	48	45	44	40	42	37	28
17/11/2024 00:00	45	59	37	49	49	46	43	40	42	36	27
17/11/2024 00:15	43	60	36	47	48	44	42	37	41	35	27
17/11/2024 00:30	45	65	36	48	47	47	44	38	42	38	28
17/11/2024 00:45	42	57	35	45	47	44	43	36	39	34	26
17/11/2024 01:00	41	57	34	43	45	41	39	35	38	33	25
17/11/2024 01:15	40	55	34	41	47	41	39	35	38	33	25
17/11/2024 01:30	41	59	35	43	46	41	39	35	38	33	25
17/11/2024 01:45	42	58	35	45	48	45	44	38	38	33	27
17/11/2024 02:00	39	55	35	40	47	42	40	35	36	30	25
17/11/2024 02:15	39	57	34	38	45	39	37	34	36	30	24
17/11/2024 02:30	39	56	34	41	46	41	39	35	36	30	25
17/11/2024 02:45	44	65	34	46	50	47	47	41	39	33	28
17/11/2024 03:00	41	56	34	43	45	41	40	35	38	32	25
17/11/2024 03:15	37	53	34	37	45	38	35	34	34	25	25
17/11/2024 03:30	42	63	34	42	45	49	45	36	38	33	28
17/11/2024 03:45	48	67	36	52	49	54	55	45	39	33	27
17/11/2024 04:00	37	51	33	37	44	38	35	34	34	26	24
17/11/2024 04:15	41	56	33	45	48	44	44	38	36	30	25

Table A.3 – Measured Sound Levels at LT3

Period start	Broadband Sound Levels, dBA				Octave Band Sound Levels, dB Leq						
	Leq	Lmax	L90	L10	63H z	125H z	250H z	500H z	1Kh z	2KH Z	4KH z
17/11/2024 04:30	41	60	34	42	46	42	44	42	35	28	24
17/11/2024 04:45	43	64	36	44	46	41	41	36	41	35	27
17/11/2024 05:00	49	69	36	53	50	51	55	46	40	35	28
17/11/2024 05:15	45	61	37	48	47	46	45	39	43	37	30
17/11/2024 05:30	47	66	38	50	48	44	46	40	44	39	33
17/11/2024 05:45	47	61	39	51	49	44	45	41	44	39	33
17/11/2024 06:00	46	60	40	50	51	49	48	42	42	37	33
17/11/2024 06:15	47	59	39	51	51	49	47	41	44	39	33
17/11/2024 06:30	48	65	39	53	54	48	48	42	45	40	32
17/11/2024 06:45	46	60	40	50	51	46	45	40	43	38	33
17/11/2024 07:00	48	65	41	52	54	49	46	41	45	41	35
17/11/2024 07:15	47	63	40	52	51	47	47	42	44	40	31
17/11/2024 07:30	49	67	41	53	56	51	50	45	45	42	35
17/11/2024 07:45	46	58	41	49	51	46	45	41	43	38	30
17/11/2024 08:00	49	63	42	53	55	49	51	44	45	41	35
17/11/2024 08:15	51	61	45	54	57	54	51	46	47	43	37
17/11/2024 08:30	55	81	47	58	57	57	52	51	53	46	43
17/11/2024 08:45	58	83	49	59	56	56	53	55	55	48	44
17/11/2024 09:00	66	89	51	69	56	55	56	63	63	56	57
17/11/2024 09:15	64	91	50	66	54	55	54	61	62	54	52
17/11/2024 09:30	64	90	50	65	58	58	55	61	62	55	50
17/11/2024 09:45	65	92	50	66	56	56	55	62	63	55	52
17/11/2024 10:00	65	86	53	68	57	56	56	62	62	55	50
17/11/2024 10:15	62	94	50	61	58	56	54	56	59	56	48

Table A.3 – Measured Sound Levels at LT3

Period start	Broadband Sound Levels, dBA				Octave Band Sound Levels, dB Leq						
	Leq	Lmax	L90	L10	63H z	125H z	250H z	500H z	1Kh z	2KH Z	4KH z
17/11/2024 10:30	69	92	52	71	58	57	57	65	67	60	52
17/11/2024 10:45	68	89	53	71	58	57	57	66	64	59	55
17/11/2024 11:00	68	88	53	71	56	55	57	65	64	59	57
17/11/2024 11:15	70	88	51	74	56	55	57	67	67	60	56
17/11/2024 11:30	68	89	52	71	58	57	57	66	65	58	53
17/11/2024 11:45	66	90	49	65	57	54	56	63	63	56	51
17/11/2024 12:00	53	66	49	55	58	56	54	48	49	45	39
17/11/2024 12:15	54	74	50	56	59	58	54	50	50	46	41
17/11/2024 12:30	54	74	49	56	57	55	52	49	50	46	41
17/11/2024 12:45	63	86	54	66	59	60	57	61	60	55	49
17/11/2024 13:00	76	95	58	80	58	56	59	68	75	66	59
17/11/2024 13:15	73	93	58	77	59	57	58	68	72	64	58
17/11/2024 13:30	76	97	58	79	59	58	61	70	74	67	60
17/11/2024 13:45	73	96	58	75	58	56	59	69	71	64	60
17/11/2024 14:00	75	95	60	79	59	58	59	72	72	66	60
17/11/2024 14:15	72	94	59	73	57	57	58	66	71	62	55
17/11/2024 14:30	65	86	51	68	57	57	57	62	63	57	54
17/11/2024 14:45	54	69	49	57	56	52	52	48	50	47	42
17/11/2024 15:00	53	67	47	56	55	51	51	47	49	46	40
17/11/2024 15:15	55	68	50	58	58	55	54	50	51	48	44
17/11/2024 15:30	54	66	48	57	58	52	52	48	50	47	43
17/11/2024 15:45	55	72	46	57	56	55	53	51	52	47	40
17/11/2024 16:00	54	63	48	57	56	54	52	48	50	46	39
17/11/2024 16:15	55	73	46	57	56	54	52	47	50	49	44

Table A.3 – Measured Sound Levels at LT3

Period start	Broadband Sound Levels, dBA				Octave Band Sound Levels, dB Leq						
	Leq	Lmax	L90	L10	63H z	125H z	250H z	500H z	1Kh z	2KH Z	4KH z
17/11/2024 16:30	53	63	46	57	56	52	52	47	50	46	37
17/11/2024 16:45	53	63	45	56	55	52	52	47	50	45	37
17/11/2024 17:00	53	64	46	56	55	51	51	47	50	46	37
17/11/2024 17:15	53	61	48	56	57	54	52	48	50	45	36
17/11/2024 17:30	53	61	47	56	56	55	51	47	50	45	35
17/11/2024 17:45	52	61	47	55	55	52	51	46	49	44	34
17/11/2024 18:00	53	66	48	56	56	52	51	48	50	44	34
17/11/2024 18:15	52	61	47	55	55	50	50	46	49	43	33
17/11/2024 18:30	52	61	48	55	55	52	50	46	50	45	34
17/11/2024 18:45	53	70	47	56	59	54	51	48	50	45	34
17/11/2024 19:00	52	67	47	55	54	51	51	48	49	44	34
17/11/2024 19:15	50	64	45	54	56	50	49	45	48	42	32
17/11/2024 19:30	50	69	45	53	53	55	50	45	47	41	31
17/11/2024 19:45	50	61	45	54	55	52	50	46	47	41	31
17/11/2024 20:00	50	62	46	54	53	49	48	44	48	43	33
17/11/2024 20:15	50	62	44	54	53	48	47	43	48	43	32
17/11/2024 20:30	50	61	45	53	54	50	48	44	47	41	31
17/11/2024 20:45	51	62	45	54	54	50	48	45	49	43	33
17/11/2024 21:00	51	63	47	54	52	48	47	44	46	44	41
17/11/2024 21:15	48	65	40	52	53	48	46	44	44	41	36
17/11/2024 21:30	48	60	41	52	53	49	49	46	44	40	33
17/11/2024 21:45	48	60	43	52	52	46	45	42	45	41	33
17/11/2024 22:00	48	61	45	51	51	46	44	44	46	40	31
17/11/2024 22:15	48	62	44	52	51	48	46	43	46	40	31

Table A.3 – Measured Sound Levels at LT3

Period start	Broadband Sound Levels, dBA				Octave Band Sound Levels, dB Leq						
	Leq	Lmax	L90	L10	63H z	125H z	250H z	500H z	1Kh z	2KH Z	4KH z
17/11/2024 22:30	47	59	43	50	50	46	44	42	44	39	31
17/11/2024 22:45	47	59	41	50	49	44	44	41	43	39	34
17/11/2024 23:00	46	63	38	50	52	46	48	45	42	36	30
17/11/2024 23:15	45	59	39	48	51	48	46	41	41	36	29
17/11/2024 23:30	45	57	39	50	50	44	44	42	42	37	30
17/11/2024 23:45	44	58	39	47	51	44	44	42	40	34	27
18/11/2024 00:00	42	53	39	43	49	42	39	38	39	33	26
18/11/2024 00:15	42	55	37	44	48	41	39	38	39	34	28
18/11/2024 00:30	40	60	35	41	48	41	38	36	38	32	26
18/11/2024 00:45	39	55	36	40	46	41	37	37	37	29	25
18/11/2024 01:00	42	60	35	41	47	40	39	36	39	35	27
18/11/2024 01:15	41	59	34	43	50	48	42	36	37	31	27
18/11/2024 01:30	39	63	35	41	45	41	35	36	36	26	26
18/11/2024 01:45	41	65	36	42	45	40	38	37	38	31	28
18/11/2024 02:00	40	58	37	41	47	39	36	37	38	29	25
18/11/2024 02:15	43	62	37	44	47	41	40	38	41	35	27
18/11/2024 02:30	37	49	34	39	45	37	34	34	35	24	24
18/11/2024 02:45	39	57	33	39	45	38	37	35	37	31	26
18/11/2024 03:00	41	59	34	41	47	40	39	35	39	34	27
18/11/2024 03:15	43	59	38	44	47	42	40	38	41	35	28
18/11/2024 03:30	43	61	38	43	46	41	39	38	41	33	25
18/11/2024 03:45	41	62	38	43	47	42	41	38	38	26	24
18/11/2024 04:00	44	60	39	45	49	43	40	39	42	36	29
18/11/2024 04:15	45	62	40	45	49	43	42	41	42	36	29

Table A.3 – Measured Sound Levels at LT3

Period start	Broadband Sound Levels, dBA				Octave Band Sound Levels, dB Leq						
	Leq	Lmax	L90	L10	63H z	125H z	250H z	500H z	1Kh z	2KH Z	4KH z
18/11/2024 04:30	44	61	40	45	48	43	40	39	42	34	31
18/11/2024 04:45	47	62	42	48	48	43	42	42	44	38	32
18/11/2024 05:00	50	63	45	53	51	47	47	44	47	42	35
18/11/2024 05:15	52	62	48	55	53	49	48	46	50	43	37
18/11/2024 05:30	55	63	51	58	56	53	51	49	53	47	38
18/11/2024 05:45	54	64	49	57	56	51	51	48	52	46	37
18/11/2024 06:00	55	64	50	59	55	53	52	50	53	47	36
18/11/2024 06:15	56	68	52	59	57	53	51	50	54	47	37
18/11/2024 06:30	56	66	52	58	56	52	51	50	54	47	37
18/11/2024 06:45	56	64	53	58	58	54	52	51	54	48	37
18/11/2024 07:00	58	69	54	60	57	53	52	52	56	50	40
18/11/2024 07:15	57	65	54	59	59	55	53	51	55	49	39
18/11/2024 07:30	58	73	54	59	61	59	58	55	56	49	37
18/11/2024 07:45	55	62	52	57	61	56	53	50	53	47	35
18/11/2024 08:00	57	70	53	59	61	60	56	53	54	47	40
18/11/2024 08:15	57	64	54	59	62	56	54	51	54	48	37
18/11/2024 08:30	58	71	55	59	61	58	55	53	55	49	37
18/11/2024 08:45	58	65	55	60	61	59	55	53	56	49	38
18/11/2024 09:00	58	64	56	60	60	59	55	54	56	48	36
18/11/2024 09:15	57	68	55	59	60	57	54	53	55	48	37
18/11/2024 09:30	58	75	53	59	62	59	57	57	55	48	39
18/11/2024 09:45	57	66	54	59	61	56	55	53	54	47	37
18/11/2024 10:00	55	69	51	57	59	56	55	53	52	45	37
18/11/2024 10:15	54	71	49	57	59	54	52	50	52	46	40

Table A.3 – Measured Sound Levels at LT3

Period start	Broadband Sound Levels, dBA				Octave Band Sound Levels, dB Leq						
	Leq	Lmax	L90	L10	63H z	125H z	250H z	500H z	1Kh z	2KH Z	4KH z
18/11/2024 10:30	54	67	49	57	59	56	55	52	51	45	35
18/11/2024 10:45	53	61	49	56	60	55	52	48	50	45	34
18/11/2024 11:00	55	74	48	56	62	60	56	52	51	45	36
18/11/2024 11:15	54	71	49	57	62	56	54	50	51	45	35
18/11/2024 11:30	57	73	50	58	60	64	61	54	51	45	36
18/11/2024 11:45	56	83	49	57	60	55	52	51	54	47	36
18/11/2024 12:00	57	80	49	58	61	58	54	52	54	47	35
18/11/2024 12:15	55	68	51	57	62	58	54	49	52	47	36
18/11/2024 12:30	54	65	49	57	60	56	53	50	51	45	33
18/11/2024 12:45	53	66	49	56	59	53	52	48	51	45	34
18/11/2024 13:00	53	61	49	56	59	54	52	48	51	45	34
18/11/2024 13:15	56	74	50	57	58	59	56	53	52	46	34
18/11/2024 13:30	54	65	50	57	59	58	53	50	51	46	34
18/11/2024 13:45	54	65	51	56	59	54	52	49	52	46	35
18/11/2024 14:00	56	65	53	58	59	55	54	51	53	47	35
18/11/2024 14:15	55	71	52	57	59	54	52	50	53	46	36
18/11/2024 14:30	56	66	52	58	61	57	55	53	53	47	36
18/11/2024 14:45	56	67	53	58	61	58	55	52	53	46	37
18/11/2024 15:00	57	65	54	59	62	57	54	53	54	47	36
18/11/2024 15:15	56	76	53	57	61	56	54	52	53	48	35
18/11/2024 15:30	59	72	54	61	64	65	60	56	55	48	38
18/11/2024 15:45	56	65	53	58	60	56	53	51	54	47	35
18/11/2024 16:00	57	75	55	59	60	56	55	54	55	49	38
18/11/2024 16:15	57	72	54	58	58	55	53	51	54	48	36

Table A.3 – Measured Sound Levels at LT3

Period start	Broadband Sound Levels, dBA				Octave Band Sound Levels, dB Leq						
	Leq	Lmax	L90	L10	63H z	125H z	250H z	500H z	1Kh z	2KH Z	4KH z
18/11/2024 16:30	58	72	55	59	59	57	54	52	55	50	41
18/11/2024 16:45	58	78	54	60	59	56	53	52	56	51	44
18/11/2024 17:00	62	86	56	64	59	58	54	54	60	55	51
18/11/2024 17:15	62	82	56	64	58	55	53	54	59	55	49
18/11/2024 17:30	64	82	57	66	60	59	55	56	61	57	51
18/11/2024 17:45	65	88	58	67	60	60	59	58	61	59	52
18/11/2024 18:00	62	81	57	65	59	60	55	56	60	55	49
18/11/2024 18:15	66	89	59	69	60	61	57	59	64	59	53
18/11/2024 18:30	66	82	59	69	59	59	56	60	63	58	53
18/11/2024 18:45	66	86	58	68	59	59	55	60	63	58	53
18/11/2024 19:00	62	86	56	65	59	58	55	56	60	55	50
18/11/2024 19:15	58	77	53	61	58	58	54	54	55	51	45
18/11/2024 19:30	62	80	55	66	59	59	57	55	60	56	49
18/11/2024 19:45	65	85	57	69	59	60	57	58	62	59	53
18/11/2024 20:00	58	77	52	60	59	57	54	51	55	51	44
18/11/2024 20:15	57	74	51	60	58	55	52	50	54	50	42
18/11/2024 20:30	56	79	51	59	58	56	53	50	54	50	42
18/11/2024 20:45	57	79	50	61	57	57	52	50	55	50	43
18/11/2024 21:00	54	70	48	57	57	52	49	48	50	47	41
18/11/2024 21:15	53	61	49	56	58	53	50	48	49	45	39
18/11/2024 21:30	53	63	48	56	57	54	50	48	50	44	37
18/11/2024 21:45	52	66	47	55	57	54	50	47	49	44	36
18/11/2024 22:00	52	62	48	56	56	53	51	47	50	45	36
18/11/2024 22:15	52	65	47	55	58	54	53	47	48	42	35

Table A.3 – Measured Sound Levels at LT3

Period start	Broadband Sound Levels, dBA				Octave Band Sound Levels, dB Leq						
	Leq	Lmax	L90	L10	63H z	125H z	250H z	500H z	1Kh z	2KH Z	4KH z
18/11/2024 22:30	55	71	48	58	61	57	57	52	51	45	37
18/11/2024 22:45	53	69	47	57	61	56	55	50	49	44	36
18/11/2024 23:00	54	68	47	58	62	58	58	51	49	42	36
18/11/2024 23:15	51	65	45	54	59	56	54	48	47	40	32
18/11/2024 23:30	54	65	47	58	58	55	53	48	51	45	35
18/11/2024 23:45	52	66	45	56	58	56	54	48	49	43	35
19/11/2024 00:00	48	62	42	51	56	52	50	45	44	36	29
19/11/2024 00:15	49	65	42	51	57	53	51	46	44	38	30
19/11/2024 00:30	47	65	42	50	56	52	50	45	43	35	28
19/11/2024 00:45	46	60	42	48	55	50	47	44	43	34	26
19/11/2024 01:00	47	62	42	48	55	49	45	42	44	39	28
19/11/2024 01:15	44	56	40	47	54	47	44	41	41	35	27
19/11/2024 01:30	42	58	39	43	52	45	41	40	39	31	25
19/11/2024 01:45	41	59	38	42	50	44	39	40	38	30	25
19/11/2024 02:00	43	57	40	44	52	46	41	41	40	31	25
19/11/2024 02:15	42	58	39	44	50	45	42	41	39	29	24
19/11/2024 02:30	43	56	39	44	51	45	40	41	39	30	27
19/11/2024 02:45	41	51	39	43	52	46	40	40	37	27	26
19/11/2024 03:00	43	58	39	44	51	45	41	41	40	33	27
19/11/2024 03:15	43	56	40	44	51	45	41	41	40	32	28
19/11/2024 03:30	42	56	40	44	51	44	40	41	39	30	26
19/11/2024 03:45	45	63	40	47	51	45	42	41	42	37	31
19/11/2024 04:00	44	62	40	44	51	44	39	41	41	36	27
19/11/2024 04:15	44	61	40	45	52	45	43	41	41	36	29

Table A.3 – Measured Sound Levels at LT3

Period start	Broadband Sound Levels, dBA				Octave Band Sound Levels, dB Leq						
	Leq	Lmax	L90	L10	63H z	125H z	250H z	500H z	1Kh z	2KH Z	4KH z
19/11/2024 04:30	44	58	41	45	51	43	40	42	41	33	27
19/11/2024 04:45	46	60	42	48	52	46	42	43	44	38	30
19/11/2024 05:00	48	61	43	51	52	46	43	44	46	40	31
19/11/2024 05:15	51	61	47	55	54	48	47	47	49	43	33
19/11/2024 05:30	53	62	48	56	56	50	48	48	50	45	36
19/11/2024 05:45	52	62	48	56	56	49	48	47	50	44	36
19/11/2024 06:00	52	63	48	55	55	48	46	48	50	44	34
19/11/2024 06:15	55	70	50	58	58	53	52	53	52	44	34
19/11/2024 06:30	55	62	52	58	58	52	52	52	53	46	35
19/11/2024 06:45	55	62	53	57	58	52	51	51	53	46	36
19/11/2024 07:00	54	62	50	57	58	51	49	49	52	46	35
19/11/2024 07:15	54	63	50	57	59	53	51	48	52	47	36
19/11/2024 07:30	56	66	53	58	60	54	52	51	54	47	37
19/11/2024 07:45	58	80	53	58	61	54	54	52	56	48	37
19/11/2024 08:00	55	62	51	57	60	53	50	49	53	47	36
19/11/2024 08:15	56	64	53	59	61	55	54	50	54	48	37
19/11/2024 08:30	56	66	52	59	61	53	50	50	54	49	37
19/11/2024 08:45	57	66	53	59	61	57	53	52	54	48	39
19/11/2024 09:00	56	69	53	59	60	54	52	51	54	48	42
19/11/2024 09:15	55	64	52	58	60	55	53	51	52	47	36
19/11/2024 09:30	54	67	51	57	61	54	51	51	52	45	37
19/11/2024 09:45	55	63	52	58	61	54	50	50	53	47	38
19/11/2024 10:00	54	66	49	57	60	55	54	51	51	44	34
19/11/2024 10:15	55	64	50	57	60	54	51	51	52	46	36

Table A.4 – Measured Sound Levels at LT4

Period Start	Broadband Sound Levels, dB				Octave Band Sound Levels, dB Leq						
	Leq	Lmax	L90	L10	63Hz	125Hz	250Hz	500Hz	1Khz	2KHz	4KHz
15/11/2024 14:30	49	63	43	52	59	53	52	45	43	39	33
15/11/2024 14:45	49	60	44	51	59	53	52	44	44	40	33
15/11/2024 15:00	48	63	43	50	58	52	52	43	43	38	32
15/11/2024 15:15	48	62	44	50	58	53	52	43	44	38	34
15/11/2024 15:30	49	66	45	51	58	53	53	44	44	39	31
15/11/2024 15:45	48	61	44	51	57	52	51	45	44	38	30
15/11/2024 16:00	49	63	44	51	57	54	53	44	44	38	30
15/11/2024 16:15	48	64	43	50	57	53	52	43	43	38	30
15/11/2024 16:30	56	78	44	59	56	55	54	50	51	50	46
15/11/2024 16:45	56	81	46	58	56	55	53	50	52	49	46
15/11/2024 17:00	57	77	51	60	58	56	54	54	54	49	43
15/11/2024 17:15	59	76	52	61	57	57	55	55	55	51	46
15/11/2024 17:30	60	77	53	63	57	58	54	55	56	52	46
15/11/2024 17:45	63	82	54	66	59	61	56	57	59	56	51
15/11/2024 18:00	60	87	51	61	56	56	53	54	57	53	47
15/11/2024 18:15	58	75	51	61	56	56	53	54	54	50	44
15/11/2024 18:30	60	75	53	62	58	58	55	56	56	52	47
15/11/2024 18:45	63	80	55	66	59	61	56	60	59	54	50
15/11/2024 19:00	64	93	51	67	58	61	57	60	61	55	51
15/11/2024 19:15	65	88	52	68	55	56	56	60	62	57	51
15/11/2024 19:30	64	88	53	67	57	58	55	61	61	56	51
15/11/2024 19:45	66	93	53	68	58	58	56	60	64	58	51
15/11/2024 20:00	64	83	53	67	61	58	57	60	61	56	50
15/11/2024 20:15	65	86	53	69	55	55	55	61	62	57	53
15/11/2024 20:30	63	84	46	66	53	55	57	60	60	54	50
15/11/2024 20:45	46	68	37	49	52	49	47	42	42	37	34
15/11/2024 21:00	43	65	35	47	51	47	46	40	38	33	27
15/11/2024 21:15	42	58	36	46	50	45	45	40	38	31	24
15/11/2024 21:30	43	54	36	46	52	47	46	39	38	32	24
15/11/2024 21:45	41	52	35	44	50	44	43	37	37	30	24
15/11/2024 22:00	43	60	36	47	51	47	46	42	38	30	24
15/11/2024 22:15	43	54	35	47	51	47	46	41	38	30	24
15/11/2024 22:30	41	54	34	46	50	46	44	39	37	30	24
15/11/2024 22:45	41	50	34	45	50	44	44	36	37	31	24
15/11/2024 23:00	41	57	34	44	51	45	44	36	37	32	25
15/11/2024 23:15	39	51	33	44	50	44	42	35	35	29	24
15/11/2024 23:30	38	50	32	43	50	43	42	33	34	29	24
15/11/2024 23:45	40	53	32	44	49	43	42	37	35	29	24

Table A.4 – Measured Sound Levels at LT4

Period Start	Broadband Sound Levels, dB				Octave Band Sound Levels, dB Leq						
	Leq	Lmax	L90	L10	63Hz	125Hz	250Hz	500Hz	1Khz	2KHz	4KHz
16/11/2024 00:00	38	50	31	42	49	43	41	32	34	28	23
16/11/2024 00:15	35	49	30	38	47	40	38	31	31	26	23
16/11/2024 00:30	37	49	31	41	48	42	40	32	33	26	23
16/11/2024 00:45	36	50	30	38	46	40	38	31	32	26	23
16/11/2024 01:00	36	51	29	39	46	41	39	31	32	25	23
16/11/2024 01:15	37	52	29	41	45	41	40	32	33	27	23
16/11/2024 01:30	34	50	29	35	45	38	36	29	30	24	23
16/11/2024 01:45	34	47	29	36	44	38	36	30	30	25	23
16/11/2024 02:00	32	46	29	32	44	37	32	29	28	21	23
16/11/2024 02:15	36	52	30	35	46	40	38	31	32	26	23
16/11/2024 02:30	35	55	29	35	43	39	36	30	31	25	23
16/11/2024 02:45	33	51	30	33	43	37	34	29	30	23	23
16/11/2024 03:00	35	48	31	37	44	40	36	31	30	24	24
16/11/2024 03:15	37	54	31	40	43	38	34	30	33	30	27
16/11/2024 03:30	36	50	30	39	44	38	36	30	32	28	25
16/11/2024 03:45	33	54	30	34	41	35	29	28	28	22	28
16/11/2024 04:00	35	51	30	37	44	40	34	31	29	23	29
16/11/2024 04:15	35	50	31	36	43	37	32	29	30	23	30
16/11/2024 04:30	36	52	31	39	44	40	36	31	32	25	30
16/11/2024 04:45	36	50	31	38	44	41	37	31	32	26	26
16/11/2024 05:00	38	54	32	42	45	42	40	33	33	28	31
16/11/2024 05:15	40	55	33	45	49	45	41	36	36	32	30
16/11/2024 05:30	42	55	34	46	47	44	43	37	38	33	32
16/11/2024 05:45	42	58	35	46	47	44	43	39	38	33	32
16/11/2024 06:00	42	53	35	46	50	46	45	38	37	32	27
16/11/2024 06:15	46	65	36	49	51	51	50	46	40	34	30
16/11/2024 06:30	44	57	36	48	52	49	47	42	39	34	29
16/11/2024 06:45	44	55	37	48	51	48	47	40	40	34	29
16/11/2024 07:00	45	60	38	48	51	47	45	40	41	37	32
16/11/2024 07:15	45	60	38	48	50	47	45	41	41	36	32
16/11/2024 07:30	52	80	39	53	52	48	47	42	43	48	46
16/11/2024 07:45	51	70	40	55	54	52	51	46	42	43	41
16/11/2024 08:00	56	87	41	55	56	57	50	48	52	48	50
16/11/2024 08:15	66	94	55	66	56	55	54	59	63	60	55
16/11/2024 08:30	67	86	58	70	55	54	55	62	64	59	58
16/11/2024 08:45	68	89	60	70	58	58	56	63	64	60	59
16/11/2024 09:00	71	91	64	74	58	58	59	66	67	63	61
16/11/2024 09:15	69	85	63	72	58	57	59	64	66	61	58
16/11/2024 09:30	70	85	63	73	59	57	58	64	67	62	59
16/11/2024 09:45	72	94	64	74	58	58	58	64	69	64	62

Table A.4 – Measured Sound Levels at LT4

Period Start	Broadband Sound Levels, dB				Octave Band Sound Levels, dB Leq						
	Leq	Lmax	L90	L10	63Hz	125Hz	250Hz	500Hz	1Khz	2KHz	4KHz
16/11/2024 10:00	71	94	63	73	58	59	60	66	67	64	63
16/11/2024 10:15	67	88	56	69	57	56	56	62	64	58	56
16/11/2024 10:30	68	90	57	71	56	56	57	65	65	59	56
16/11/2024 10:45	70	95	62	72	58	59	58	64	66	64	59
16/11/2024 11:00	66	84	61	69	59	59	57	62	62	59	55
16/11/2024 11:15	68	89	60	71	59	58	57	63	66	61	59
16/11/2024 11:30	69	85	61	73	57	57	58	64	66	62	59
16/11/2024 11:45	69	88	61	72	60	58	58	64	65	61	58
16/11/2024 12:00	74	98	64	75	61	61	61	67	70	68	63
16/11/2024 12:15	69	91	61	71	61	61	59	65	65	61	62
16/11/2024 12:30	72	88	64	75	58	58	61	67	68	66	61
16/11/2024 12:45	72	91	64	76	56	56	60	68	68	65	61
16/11/2024 13:00	73	94	62	76	55	55	59	68	70	64	60
16/11/2024 13:15	70	94	60	72	59	60	60	65	67	62	58
16/11/2024 13:30	64	88	52	65	56	58	55	59	61	58	51
16/11/2024 13:45	62	82	52	65	59	61	56	58	58	55	52
16/11/2024 14:00	71	91	56	74	57	57	57	64	69	62	61
16/11/2024 14:15	69	86	58	72	57	58	57	63	66	61	58
16/11/2024 14:30	70	91	57	72	57	57	58	63	68	62	59
16/11/2024 14:45	67	87	54	70	55	56	56	62	65	59	55
16/11/2024 15:00	70	88	56	74	56	57	57	64	68	61	59
16/11/2024 15:15	73	92	56	77	55	55	59	68	71	64	62
16/11/2024 15:30	75	96	56	79	57	58	60	68	73	66	61
16/11/2024 15:45	59	81	46	63	55	53	53	57	55	50	45
16/11/2024 16:00	51	64	45	54	55	51	51	47	48	42	32
16/11/2024 16:15	49	64	44	52	54	50	50	45	46	40	34
16/11/2024 16:30	51	72	44	54	54	50	50	46	48	43	34
16/11/2024 16:45	48	54	43	51	53	50	50	43	45	38	28
16/11/2024 17:00	51	72	44	53	54	51	51	47	48	42	33
16/11/2024 17:15	50	63	44	52	58	53	51	45	46	40	30
16/11/2024 17:30	52	64	45	54	53	51	51	47	49	43	30
16/11/2024 17:45	49	59	44	52	53	49	49	44	46	40	28
16/11/2024 18:00	50	65	44	52	54	51	50	46	47	40	30
16/11/2024 18:15	49	62	44	52	53	49	50	45	46	40	29
16/11/2024 18:30	51	67	43	54	55	54	52	49	47	39	29
16/11/2024 18:45	51	70	42	53	56	55	53	49	46	38	27
16/11/2024 19:00	54	85	44	52	54	54	53	52	49	43	35
16/11/2024 19:15	47	64	43	50	53	49	49	43	45	37	29
16/11/2024 19:30	49	69	43	53	53	57	49	46	46	40	29
16/11/2024 19:45	48	71	42	52	53	52	50	45	45	38	28

Table A.4 – Measured Sound Levels at LT4

Period Start	Broadband Sound Levels, dB				Octave Band Sound Levels, dB Leq						
	Leq	Lmax	L90	L10	63Hz	125Hz	250Hz	500Hz	1Khz	2KHz	4KHz
16/11/2024 20:00	49	65	42	52	52	51	49	45	46	40	30
16/11/2024 20:15	47	62	41	51	52	52	50	44	43	36	27
16/11/2024 20:30	48	62	41	50	51	48	47	43	45	39	30
16/11/2024 20:45	46	58	40	49	50	47	46	41	43	37	27
16/11/2024 21:00	50	63	41	53	52	49	49	45	46	42	37
16/11/2024 21:15	46	58	41	50	51	47	46	41	43	37	31
16/11/2024 21:30	50	66	42	53	53	51	51	46	46	41	33
16/11/2024 21:45	48	66	41	51	52	47	46	43	46	40	31
16/11/2024 22:00	45	56	40	49	49	45	44	40	42	37	29
16/11/2024 22:15	46	57	40	49	51	47	46	40	43	37	29
16/11/2024 22:30	49	64	41	51	51	48	47	45	46	40	30
16/11/2024 22:45	47	58	39	51	50	48	47	42	44	37	29
16/11/2024 23:00	46	66	40	50	50	48	46	40	43	39	34
16/11/2024 23:15	44	59	38	47	51	49	47	41	39	33	26
16/11/2024 23:30	47	62	39	50	51	49	50	43	42	36	29
16/11/2024 23:45	46	59	39	50	50	48	48	42	43	36	29
17/11/2024 00:00	46	61	38	50	50	47	46	42	43	36	28
17/11/2024 00:15	43	56	37	47	49	46	44	38	40	33	27
17/11/2024 00:30	44	61	38	48	48	46	45	39	41	35	27
17/11/2024 00:45	42	55	36	44	47	44	42	36	39	32	26
17/11/2024 01:00	41	58	36	44	46	42	40	36	39	31	25
17/11/2024 01:15	40	54	35	43	48	43	40	36	37	30	25
17/11/2024 01:30	40	56	35	44	47	43	41	35	37	30	26
17/11/2024 01:45	44	66	37	46	50	48	47	39	39	34	30
17/11/2024 02:00	40	54	37	42	48	44	41	36	37	29	26
17/11/2024 02:15	39	52	35	40	46	40	37	36	37	28	24
17/11/2024 02:30	45	71	36	45	53	47	48	45	38	32	32
17/11/2024 02:45	43	62	36	46	49	47	46	38	39	33	31
17/11/2024 03:00	40	51	36	44	46	42	40	37	38	30	25
17/11/2024 03:15	39	56	37	40	46	40	35	36	36	24	29
17/11/2024 03:30	41	61	35	43	46	47	44	36	36	28	31
17/11/2024 03:45	47	64	35	51	48	51	54	43	37	30	28
17/11/2024 04:00	37	52	34	38	45	38	35	34	34	25	26
17/11/2024 04:15	41	57	34	45	48	44	44	38	37	29	25
17/11/2024 04:30	42	62	36	44	47	44	45	43	36	26	24
17/11/2024 04:45	43	60	38	45	48	43	41	38	40	32	29
17/11/2024 05:00	49	68	38	52	50	51	54	48	40	31	29
17/11/2024 05:15	44	58	39	47	47	48	45	40	41	33	29
17/11/2024 05:30	45	61	38	48	47	44	46	40	42	36	32
17/11/2024 05:45	45	60	37	50	48	44	46	40	42	36	29

Table A.4 – Measured Sound Levels at LT4

Period Start	Broadband Sound Levels, dB				Octave Band Sound Levels, dB Leq						
	Leq	Lmax	L90	L10	63Hz	125Hz	250Hz	500Hz	1Khz	2KHz	4KHz
17/11/2024 06:00	45	57	39	48	49	47	47	42	40	32	34
17/11/2024 06:15	47	59	41	51	51	50	48	42	44	37	31
17/11/2024 06:30	48	59	41	52	52	48	49	43	45	38	30
17/11/2024 06:45	46	58	42	49	52	48	45	42	43	36	31
17/11/2024 07:00	47	66	42	50	51	47	45	42	44	38	34
17/11/2024 07:15	47	61	42	50	52	47	48	44	43	36	28
17/11/2024 07:30	48	66	42	51	52	49	51	45	43	37	33
17/11/2024 07:45	46	65	42	48	51	47	46	43	42	34	31
17/11/2024 08:00	50	72	43	53	53	49	51	46	45	42	39
17/11/2024 08:15	49	71	44	52	55	53	50	47	43	40	39
17/11/2024 08:30	52	77	44	54	55	56	51	50	46	43	40
17/11/2024 08:45	58	82	51	59	55	56	55	56	54	48	47
17/11/2024 09:00	68	90	52	72	55	56	58	66	65	58	56
17/11/2024 09:15	67	91	51	71	53	55	57	64	65	57	53
17/11/2024 09:30	65	90	51	68	55	55	57	63	62	54	52
17/11/2024 09:45	64	86	50	66	55	56	55	62	61	55	53
17/11/2024 10:00	65	89	53	67	55	56	56	62	63	55	51
17/11/2024 10:15	60	79	53	63	57	58	57	59	56	51	50
17/11/2024 10:30	66	86	52	69	56	56	56	63	62	58	53
17/11/2024 10:45	64	86	52	67	55	56	56	61	60	55	53
17/11/2024 11:00	63	84	51	66	54	55	55	61	59	56	49
17/11/2024 11:15	64	84	51	67	55	55	54	60	60	57	53
17/11/2024 11:30	63	86	53	67	56	56	55	60	60	56	52
17/11/2024 11:45	60	81	47	62	55	53	55	57	55	52	50
17/11/2024 12:00	52	70	47	55	56	53	53	50	47	43	38
17/11/2024 12:15	54	76	49	57	56	56	53	52	49	45	42
17/11/2024 12:30	57	78	50	61	56	54	53	54	52	49	46
17/11/2024 12:45	62	85	54	63	57	59	56	59	58	53	48
17/11/2024 13:00	73	89	61	76	57	57	61	69	71	65	58
17/11/2024 13:15	71	91	59	74	58	57	60	67	69	62	58
17/11/2024 13:30	72	94	59	75	58	57	60	67	69	64	59
17/11/2024 13:45	70	89	57	74	57	57	59	66	68	61	57
17/11/2024 14:00	70	88	59	73	57	59	59	65	67	62	57
17/11/2024 14:15	70	89	61	73	56	58	59	65	68	62	57
17/11/2024 14:30	67	87	52	70	56	56	59	63	64	58	57
17/11/2024 14:45	57	84	52	57	56	52	53	54	52	48	45
17/11/2024 15:00	52	59	49	54	55	50	51	48	48	44	42
17/11/2024 15:15	56	74	52	58	57	55	54	52	50	48	49
17/11/2024 15:30	55	64	51	57	58	51	52	49	50	47	46
17/11/2024 15:45	55	74	48	56	56	54	53	51	51	46	41

Table A.4 – Measured Sound Levels at LT4

Period Start	Broadband Sound Levels, dB				Octave Band Sound Levels, dB Leq						
	Leq	Lmax	L90	L10	63Hz	125Hz	250Hz	500Hz	1Khz	2KHz	4KHz
17/11/2024 16:00	55	77	49	57	56	54	53	49	50	45	51
17/11/2024 16:15	54	75	47	56	55	52	52	48	50	47	47
17/11/2024 16:30	52	62	47	55	56	51	52	48	49	44	35
17/11/2024 16:45	53	63	47	56	55	51	53	48	49	44	38
17/11/2024 17:00	53	61	48	56	56	51	52	48	50	45	37
17/11/2024 17:15	53	58	49	55	57	54	52	48	50	43	35
17/11/2024 17:30	52	60	48	55	55	54	52	48	49	43	34
17/11/2024 17:45	51	59	48	53	55	51	51	47	48	41	32
17/11/2024 18:00	53	68	49	54	57	52	51	50	50	41	31
17/11/2024 18:15	51	57	48	53	55	51	50	47	49	38	30
17/11/2024 18:30	51	64	48	53	56	52	51	47	49	41	32
17/11/2024 18:45	52	71	48	55	57	53	52	49	49	42	32
17/11/2024 19:00	51	71	46	53	55	53	51	50	47	38	30
17/11/2024 19:15	48	61	45	51	56	50	49	45	45	37	28
17/11/2024 19:30	49	58	46	51	54	53	49	46	46	36	27
17/11/2024 19:45	48	60	44	50	55	52	48	45	44	35	28
17/11/2024 20:00	47	57	44	50	52	48	47	43	44	37	29
17/11/2024 20:15	47	59	41	51	51	47	47	42	44	39	29
17/11/2024 20:30	47	58	41	50	53	49	49	43	43	37	28
17/11/2024 20:45	47	59	41	51	52	49	48	43	44	39	33
17/11/2024 21:00	52	63	49	54	51	47	47	44	46	45	44
17/11/2024 21:15	48	59	42	51	51	46	45	42	41	40	41
17/11/2024 21:30	46	60	38	49	52	48	48	45	39	34	32
17/11/2024 21:45	44	57	38	48	51	45	44	40	40	35	30
17/11/2024 22:00	43	54	40	46	50	45	43	40	40	33	28
17/11/2024 22:15	45	55	41	49	50	48	46	42	42	33	28
17/11/2024 22:30	44	54	41	47	50	47	44	41	41	34	29
17/11/2024 22:45	46	58	42	49	49	44	44	41	42	38	36
17/11/2024 23:00	46	65	39	47	51	45	46	45	41	33	33
17/11/2024 23:15	43	54	39	46	50	45	43	41	39	31	27
17/11/2024 23:30	44	58	40	47	50	45	44	42	40	32	27
17/11/2024 23:45	42	58	38	44	49	44	43	41	38	28	25
18/11/2024 00:00	40	52	37	41	49	43	39	37	37	28	24
18/11/2024 00:15	40	51	37	43	47	42	39	37	37	30	27
18/11/2024 00:30	39	52	35	39	46	40	38	36	36	28	24
18/11/2024 00:45	39	51	36	40	46	41	37	36	36	26	24
18/11/2024 01:00	41	57	36	42	48	41	39	37	38	32	26
18/11/2024 01:15	42	58	36	44	50	48	44	38	37	30	28
18/11/2024 01:30	40	54	37	43	47	43	36	37	38	28	27
18/11/2024 01:45	42	55	38	44	48	43	39	39	39	29	28

Table A.4 – Measured Sound Levels at LT4

Period Start	Broadband Sound Levels, dB				Octave Band Sound Levels, dB Leq						
	Leq	Lmax	L90	L10	63Hz	125Hz	250Hz	500Hz	1Khz	2KHz	4KHz
18/11/2024 02:00	41	57	39	43	49	42	38	39	39	27	26
18/11/2024 02:15	43	56	39	45	49	42	41	39	41	32	27
18/11/2024 02:30	39	48	36	41	47	39	35	36	37	25	23
18/11/2024 02:45	40	56	35	40	47	40	37	37	37	30	25
18/11/2024 03:00	41	56	37	42	49	41	39	37	39	31	25
18/11/2024 03:15	44	56	40	45	49	43	40	40	42	34	26
18/11/2024 03:30	43	58	40	45	48	44	40	39	42	32	24
18/11/2024 03:45	43	54	41	46	49	45	44	40	41	27	23
18/11/2024 04:00	45	56	42	46	50	44	41	41	43	35	29
18/11/2024 04:15	46	58	42	48	50	45	44	43	44	34	31
18/11/2024 04:30	45	57	42	47	50	45	41	41	44	33	31
18/11/2024 04:45	48	59	44	50	50	45	43	43	46	37	33
18/11/2024 05:00	50	61	46	53	52	48	47	45	48	40	34
18/11/2024 05:15	53	60	49	55	54	50	49	47	51	42	35
18/11/2024 05:30	56	64	53	58	57	53	51	51	54	46	35
18/11/2024 05:45	55	61	52	57	56	52	52	49	53	45	35
18/11/2024 06:00	56	65	53	59	56	53	53	51	54	46	34
18/11/2024 06:15	56	64	54	58	57	53	52	51	55	46	35
18/11/2024 06:30	56	65	54	58	56	53	51	52	55	46	34
18/11/2024 06:45	56	66	54	58	58	54	53	52	54	45	33
18/11/2024 07:00	58	67	55	60	58	54	53	53	56	49	38
18/11/2024 07:15	58	74	56	59	59	54	53	52	56	48	45
18/11/2024 07:30	59	74	55	58	61	59	58	56	56	47	35
18/11/2024 07:45	55	59	54	57	61	56	53	51	53	43	33
18/11/2024 08:00	57	70	54	58	61	58	57	54	54	44	38
18/11/2024 08:15	56	61	55	57	61	56	55	52	54	44	34
18/11/2024 08:30	57	71	55	58	61	57	55	53	55	44	35
18/11/2024 08:45	57	72	55	58	60	56	54	52	55	45	40
18/11/2024 09:00	57	63	56	58	59	56	55	53	55	44	33
18/11/2024 09:15	57	63	56	59	59	56	55	54	56	43	36
18/11/2024 09:30	59	76	55	58	61	59	58	58	57	46	35
18/11/2024 09:45	57	61	56	59	60	56	55	54	56	43	33
18/11/2024 10:00	56	70	52	56	59	56	56	54	53	41	32
18/11/2024 10:15	53	66	50	55	58	54	51	50	50	41	35
18/11/2024 10:30	54	68	48	55	59	55	55	52	50	41	31
18/11/2024 10:45	51	59	48	53	59	53	51	47	48	40	31
18/11/2024 11:00	55	84	48	55	62	60	57	52	50	43	40
18/11/2024 11:15	54	75	48	55	61	55	55	52	50	42	36
18/11/2024 11:30	56	72	48	54	59	64	61	54	49	41	30
18/11/2024 11:45	52	67	48	54	59	53	52	48	48	41	36

Table A.4 – Measured Sound Levels at LT4

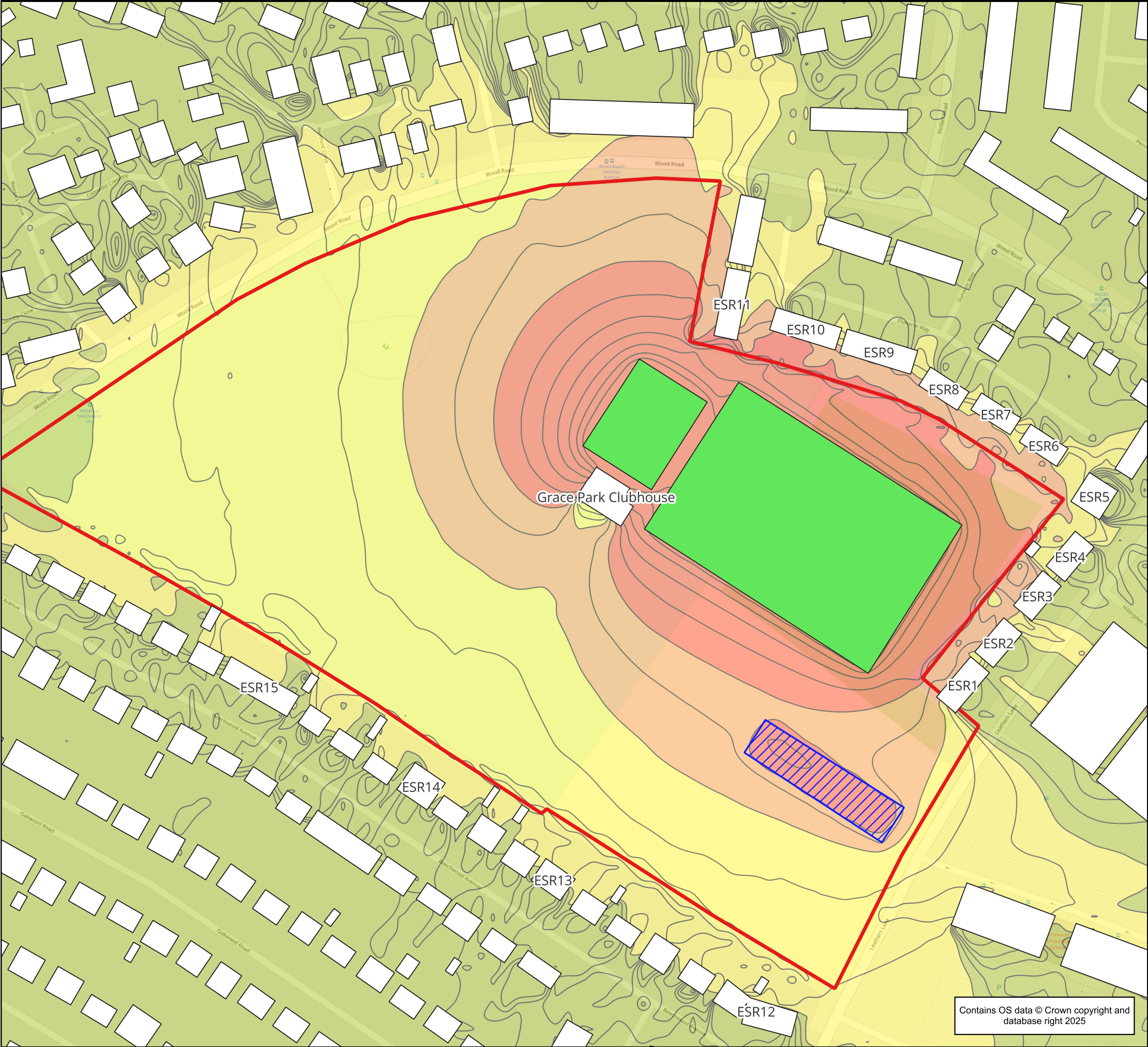
Period Start	Broadband Sound Levels, dB				Octave Band Sound Levels, dB Leq						
	Leq	Lmax	L90	L10	63Hz	125Hz	250Hz	500Hz	1Khz	2KHz	4KHz
18/11/2024 12:00	53	64	47	55	60	58	55	49	49	41	32
18/11/2024 12:15	53	70	48	54	59	56	54	49	49	42	39
18/11/2024 12:30	52	67	48	55	59	55	53	48	49	42	39
18/11/2024 12:45	51	66	47	54	57	52	51	47	48	42	31
18/11/2024 13:00	51	65	48	54	57	52	52	47	49	41	32
18/11/2024 13:15	55	72	49	55	57	58	56	53	50	43	32
18/11/2024 13:30	53	64	50	55	57	57	52	49	51	43	33
18/11/2024 13:45	52	62	49	54	56	52	52	48	50	42	32
18/11/2024 14:00	54	64	51	55	57	53	53	50	51	43	33
18/11/2024 14:15	53	74	50	55	57	52	51	48	50	42	43
18/11/2024 14:30	54	67	51	55	59	54	55	52	51	42	32
18/11/2024 14:45	54	64	51	56	59	56	55	51	51	42	34
18/11/2024 15:00	54	66	52	56	60	55	54	51	52	43	34
18/11/2024 15:15	52	60	50	54	58	53	53	49	50	41	31
18/11/2024 15:30	57	73	51	59	63	63	61	54	52	45	35
18/11/2024 15:45	54	79	50	55	58	53	53	50	52	44	39
18/11/2024 16:00	59	80	53	62	59	56	56	55	55	50	47
18/11/2024 16:15	60	83	53	61	56	53	53	53	55	56	45
18/11/2024 16:30	69	93	55	68	57	55	55	59	64	65	58
18/11/2024 16:45	65	87	55	67	58	58	55	59	61	59	54
18/11/2024 17:00	64	82	58	68	59	58	56	59	61	57	54
18/11/2024 17:15	64	81	58	67	57	54	56	59	61	56	51
18/11/2024 17:30	65	84	58	68	58	56	56	60	62	58	52
18/11/2024 17:45	67	86	60	70	59	58	58	63	65	59	55
18/11/2024 18:00	64	85	59	67	59	60	58	61	61	56	52
18/11/2024 18:15	64	80	60	66	60	61	59	61	61	56	50
18/11/2024 18:30	66	82	61	68	59	60	59	62	63	57	51
18/11/2024 18:45	66	83	61	68	59	59	58	62	63	58	53
18/11/2024 19:00	65	84	56	69	59	58	57	62	62	57	51
18/11/2024 19:15	58	74	54	61	57	57	53	54	55	51	45
18/11/2024 19:30	64	81	56	67	57	57	55	57	61	57	51
18/11/2024 19:45	65	84	58	68	59	60	58	59	62	59	52
18/11/2024 20:00	62	81	53	66	58	57	55	58	59	55	49
18/11/2024 20:15	58	79	52	60	57	55	53	52	56	49	43
18/11/2024 20:30	58	79	51	60	56	55	52	52	56	49	43
18/11/2024 20:45	59	78	51	63	56	55	51	54	57	51	44
18/11/2024 21:00	55	79	50	57	56	51	49	51	52	47	42
18/11/2024 21:15	52	61	50	55	56	50	48	48	50	43	38
18/11/2024 21:30	53	62	49	56	56	51	49	48	50	44	38
18/11/2024 21:45	52	65	49	55	56	54	49	48	50	43	37

Table A.4 – Measured Sound Levels at LT4

Period Start	Broadband Sound Levels, dB				Octave Band Sound Levels, dB Leq						
	Leq	Lmax	L90	L10	63Hz	125Hz	250Hz	500Hz	1Khz	2KHz	4KHz
18/11/2024 22:00	53	61	49	55	55	50	49	47	50	44	37
18/11/2024 22:15	51	64	48	54	55	50	47	46	49	41	37
18/11/2024 22:30	53	64	48	56	56	51	49	48	50	44	37
18/11/2024 22:45	51	64	47	54	56	50	48	47	49	42	37
18/11/2024 23:00	50	61	47	52	54	49	47	45	47	40	36
18/11/2024 23:15	49	62	45	52	55	49	48	46	46	38	35
18/11/2024 23:30	53	61	47	56	56	50	49	47	51	44	36
18/11/2024 23:45	51	66	46	54	57	51	51	46	49	42	36
19/11/2024 00:00	47	59	44	49	54	48	43	44	44	35	34
19/11/2024 00:15	46	58	43	49	54	48	46	43	43	36	33
19/11/2024 00:30	46	60	43	48	54	49	45	43	43	34	32
19/11/2024 00:45	46	57	43	48	54	48	44	44	43	33	32
19/11/2024 01:00	47	63	43	48	55	47	44	43	44	37	32
19/11/2024 01:15	44	55	41	47	53	46	43	42	41	32	31
19/11/2024 01:30	43	55	40	45	52	45	40	41	40	29	31
19/11/2024 01:45	43	54	40	44	50	44	39	40	39	28	30
19/11/2024 02:00	44	54	42	46	51	46	41	42	41	29	31
19/11/2024 02:15	43	53	40	45	50	45	41	41	40	28	30
19/11/2024 02:30	44	53	41	46	51	45	40	42	40	29	30
19/11/2024 02:45	43	53	40	45	52	46	40	42	39	27	30
19/11/2024 03:00	43	53	40	45	51	45	41	42	40	31	29
19/11/2024 03:15	44	54	41	46	51	45	42	42	41	29	29
19/11/2024 03:30	43	52	41	45	51	44	39	41	40	29	27
19/11/2024 03:45	45	60	42	47	52	45	41	42	42	35	30
19/11/2024 04:00	44	60	41	45	51	44	38	41	41	34	28
19/11/2024 04:15	44	55	42	46	52	45	42	42	42	32	29
19/11/2024 04:30	45	52	42	46	52	45	40	43	42	30	27
19/11/2024 04:45	46	56	43	48	53	46	41	43	44	34	30
19/11/2024 05:00	48	57	44	51	52	46	42	44	46	37	31
19/11/2024 05:15	51	59	49	54	55	48	46	48	50	40	33
19/11/2024 05:30	52	59	50	54	56	51	48	49	50	42	34
19/11/2024 05:45	52	59	49	54	56	49	48	48	49	41	34
19/11/2024 06:00	52	59	50	54	56	49	45	49	50	40	33
19/11/2024 06:15	54	69	52	56	58	52	49	52	52	41	32
19/11/2024 06:30	56	64	54	58	59	53	51	53	54	44	34
19/11/2024 06:45	56	59	54	57	59	53	50	52	54	43	33
19/11/2024 07:00	54	60	52	56	59	52	48	51	52	43	34
19/11/2024 07:15	54	59	51	56	60	53	51	50	51	44	35
19/11/2024 07:30	58	77	54	58	61	54	52	52	54	44	51
19/11/2024 07:45	58	75	54	57	61	55	54	53	56	45	35

Table A.4 – Measured Sound Levels at LT4											
Period Start	Broadband Sound Levels, dB				Octave Band Sound Levels, dB Leq						
	Leq	Lmax	L90	L10	63Hz	125Hz	250Hz	500Hz	1Khz	2KHz	4KHz
19/11/2024 08:00	55	61	53	56	61	53	49	51	53	44	34
19/11/2024 08:15	56	67	54	57	61	55	54	52	54	45	35
19/11/2024 08:30	56	63	54	57	61	54	50	52	54	46	35
19/11/2024 08:45	56	63	54	57	62	56	51	52	54	45	35
19/11/2024 09:00	57	72	55	58	61	55	51	53	55	46	41
19/11/2024 09:15	55	63	54	57	61	55	53	52	53	43	34
19/11/2024 09:30	54	62	53	56	61	54	50	52	52	43	35
19/11/2024 09:45	55	62	53	57	61	55	50	52	53	44	36
19/11/2024 10:00	54	66	51	56	60	55	54	53	51	41	33
19/11/2024 10:15	54	67	52	56	60	54	51	51	52	43	35

DRAWINGS



DO NOT SCALE FROM THIS DRAWING

Key

Site Boundary

Parking lot

AGP

Noise Contours LAeq,T

<50 dB

50dB - 54dB

55dB- 59dB

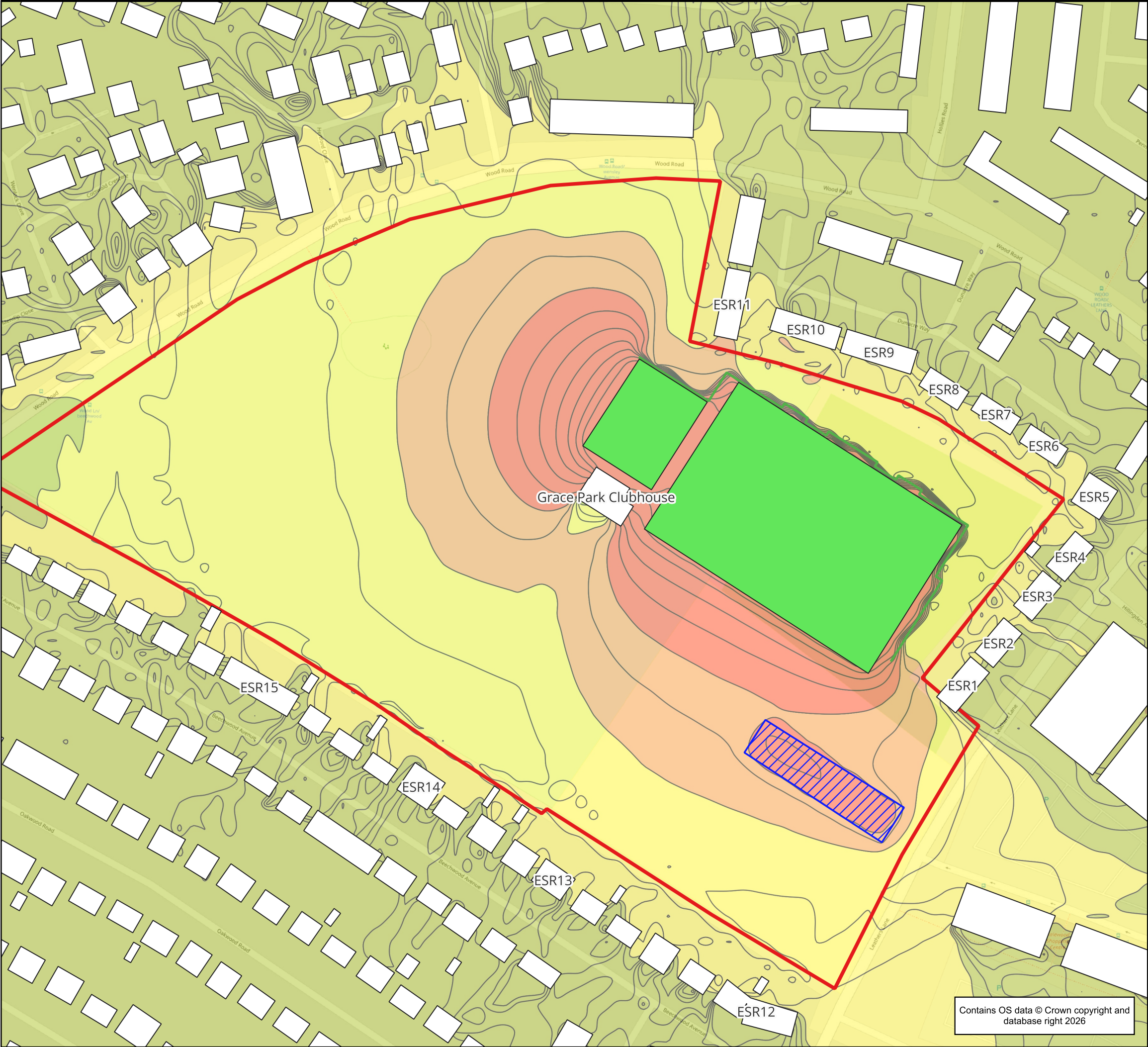
>60dB

REVISION	DETAILS	DATE	DRN	CHKD	APPD
CLIENT					
Knowsley Metropolitan Borough Council					
PROJECT					
ST21181 - Grace Park					
DRAWING TITLE					
Daytime Noise Contour Plot					
DRG No.		ST21181/001		REV	
				A	
DRG SIZE		SCALE		DATE	
A3		1:1,500		December 2025	
DRAWN		CHECKED BY		APPROVED BY	
NF		PB		PB	

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Key

Site Boundary

Parking lot

AGP

3.0m Acoustic Fence

Noise Contours LAeq,T

<50 dB

50dB - 54dB

55dB- 59dB

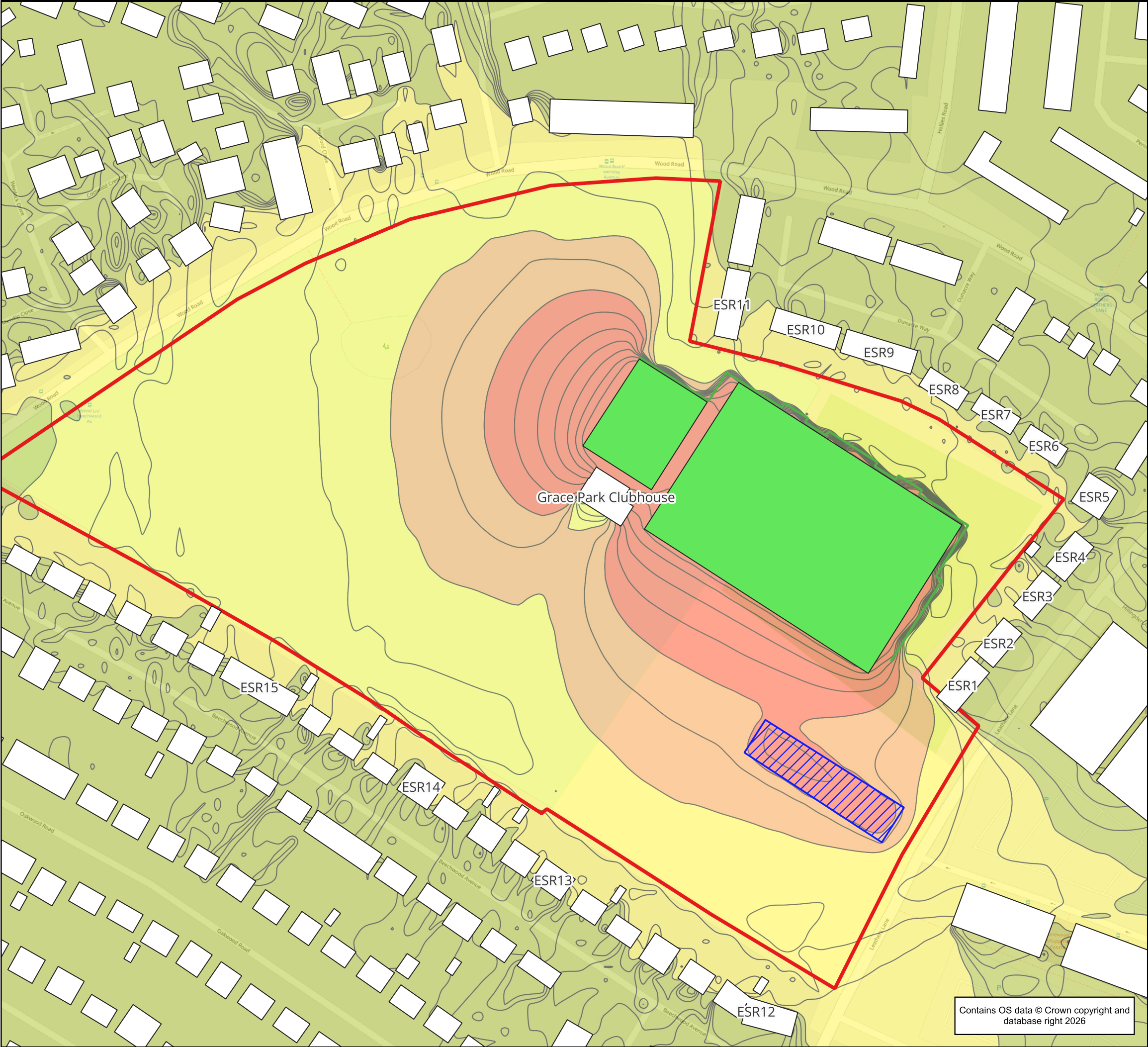
>60dB

REVISION	DETAILS	DATE	DRN	CHKD	APPD
CLIENT					
Knowsley Metropolitan Borough Council					
PROJECT					
ST21181 - Grace Park					
DRAWING TITLE					
Daytime Noise Contour Plot (3.0m Acoustic Fence)					
DRG No.		ST21181/002		REV A	
DRG SIZE		A3		SCALE 1:1,500	
DATE		January 2026			
DRAWN		NF		CHECKED BY PB	
APPROVED BY		PB			

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Key

Site Boundary

Parking lot

AGP

4.0m Acoustic Fence

Noise Contours LAeq,T

<50 dB

50dB - 54dB

55dB- 59dB

>60dB

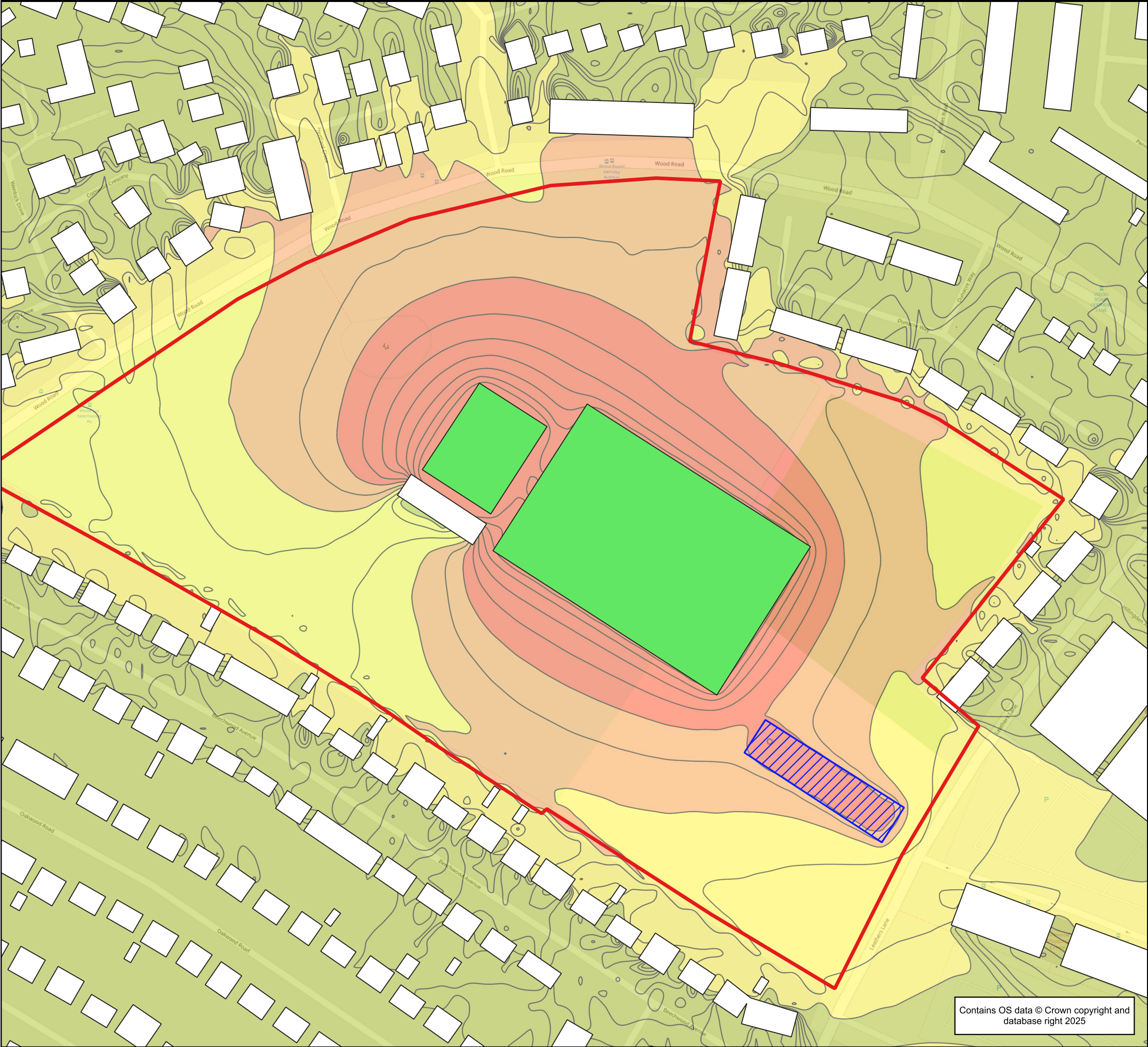
REVISION	DETAILS	DATE	DRN	CHKD	APPD
CLIENT					
Knowsley Metropolitan Borough Council					
PROJECT					
ST21181 - Grace Park					
DRAWING TITLE					
Daytime Noise Contour Plot (4.0m Acoustic Fence)					
DRG No.		ST21181/003		REV	
				A	
DRG SIZE		A3		SCALE	
				1:1,500	
DATE		January 2026			
DRAWN		NF		CHECKED BY	
				PB	
APPROVED BY		PB			

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Key

Site Boundary

Parking lot

AGP Alternative

Noise Contours L_{Aeq,T}

<50 dB

50dB - 54dB

55dB- 59dB

>60dB

REVISION	DETAILS				DATE	DRN	CHKD	APPD
CLIENT								
Knowsley Metropolitan Borough Council								
PROJECT								
ST21181 - Grace Park								
DRAWING TITLE								
Daytime Noise Contour Plot (Alternative Location)								
DRG No. ST21181/004					REV A			
DRG SIZE A3		SCALE 1:1,500		DATE June 2025				
DRAWN NF		CHECKED BY PB		APPROVED BY PB				

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