MAXI DEVELOPMENTS LTD

RESIDENTIAL DEVELOPMENT AT BRYN MORFA

NOISE IMPACT ASSESSMENT

EEL.7698.R03.001

MARCH 2021

Prepared for

Maxi Developments Ltd
c/o Cadnant Planning Ltd
1 Connaght House
Riverside Business Park
Benarth Road
Conwy
LL32 8UB

Prepared by

Egniol Consulting Ltd.
Llys Onnen
Ffordd y Llyn
Parc Menai
Bangor
LL57 4DF

Document Review

Revision	Date of Review	Prepared By	Reviewed By	Approved By
-	20/09/2019	John Goodwin	Anna Cole	Anna Cole
A	31/03/2021	Anna Cole	Dan Shoesmith	Dan Shoesmith

CONTENTS

		PAGE
1.0	**INTRODUCTION**	**1**
2.0	**POLICY & GUIDANCE**	**2**
3.0	**NOISE SURVEYS**	**7**
4.0	**NOISE IMPACT ASSESSMENT**	**9**
5.0	**MITIGATION**	**11**
6.0	**CONCLUSION**	**12**

Appendices

APPENDIX 1 Limitations

APPENDIX 2 Glossary of Acoustic Terminology

APPENDIX 3 Site location Plan & Noise Measurement Positions

APPENDIX 4 Background Sound Measurement Data

1.0 INTRODUCTION

Background

1.1 Professional Consult Limited was instructed by Egniol Consulting Limited (Egniol), on behalf of Maxi Developments to prepare a Noise Impact Assessment ('the Assessment') for a proposed residential development at Bryn Morfa in Bodelwyddan, Denbighshire LL18, to be referred to hereafter as 'the Site'.

1.2 The proposed development will comprise of 28 dwellings including the creation of a new vehicular access, internal access road and associated works. To the east of the Site lies Bodelwyddan Allotments and a Waste Water Treatment Works (WWTW) and to the south and west lies existing residential dwellings. To the north lies an open field.

1.3 Given the proximity of the Site to the WWTW, it is understood that Denbighshire County Council have requested that a Noise Impact Assessment is completed in line with the guidance and criteria presented in BS4142:2014+A1:2019 which is applicable to the assessment of commercial and industrial noise impacts upon residential dwellings.

1.4 Accordingly, this Assessment has been completed with due regard to Technical Advice Note (Wales) 11, Noise (TAN 11) which is the over-arching guidance document adopted in Wales for determining potential noise impacts and the associated British Standards referenced therein, namely BS4142:2014+A1:2019.

1.5 All acronyms used within this report are defined in the Glossary presented in Appendix 2.

Limitations

1.6 The limitations of this report are presented in Appendix 1.

Confidentiality

1.7 Professional Consult has prepared this report solely for the use of the Client and those parties with whom a warranty agreement has been executed, or with whom an assignment has been agreed. Should any third party wish to use or rely upon the contents of the report, written approval must be sought from Professional Consult; a charge may be levied against such approval.

2.0 POLICY & GUIDANCE

Planning Guidance (Wales), Technical Advice Note 11, Noise

2.1 Technical Advice Note 11 (Wales) (TAN 11) should be taken into account by local planning authorities in Wales in the preparation of development plans. They may be material to decisions on individual planning applications and will be taken into account by the Secretary of State and his Inspectors in the determination of called-in planning applications and appeals.

2.2 TAN 11 provides advice on how the planning system can be used to minimise the adverse impact of noise without placing unreasonable restrictions on development or adding unduly to the costs and administrative burdens of business. It outlines some of the main considerations which local planning authorities should take into account in drawing-up development plan policies and when determining planning applications for development which will either generate noise or be exposed to existing noise sources.

2.3 TAN 11 adopts Noise Exposure Categories (NECs) which were used in the now revoked Planning Policy Guidance Note 24 (PPG 24) - the NECs were derived to assist local planning authorities in their consideration of planning applications for residential development near transport related noise sources. The NECs are detailed in Table 1.

Table 1. Noise Exposure Categories

Category	Advice
A	Noise need not be considered as a determining factor in granting planning permission, although the noise level at the high end of the category should not be regarded as desirable.
B	Noise should be taken into account when determining planning applications and, where appropriate, conditions imposed to ensure an adequate level of protection.
C	Planning permission should not normally be granted. Where it is considered that permission should be given, for example, because there are no alternative quieter sites available, conditions should be imposed to ensure a commensurate level of protection against noise.
D	Planning permission should normally be refused.

2.4 A recommended range of noise levels is given for each of the NECs for dwellings exposed to noise from road, rail, air and mixed sources as detailed in Table 2.

Table 2. Noise Exposure Categories

Noise Source		Noise Exposure Category			
		A	B	C	D
Road Traffic	07:00 – 23:00	<55	55-63	63-72	>72
	23:00 – 07:00	<45	45-57	57-66	>66
Rail Traffic	23:00 - 07:00	<55	55-66	66-74	>74
	07:00 – 23:00	<45	45-59	59-66	>66
Air Traffic[3]	23:00 – 07:00[2]	<57	57-66	66-72	>72
	23:00 - 07:00[2]	<48	48-57	57-66	>66
Mixed Sources[4]	07:00 – 23:00	<55	55-63	63-72	>72
	23:00 – 07:00	<45	45-57	57-66	>66

Notes

(1) Noise levels: the noise level(s) (LAeq,T) used when deciding the NEC of a site should be representatives of typical conditions.

(2) Night-time noise levels (2300-0700): sites where individual noise events regularly exceed 82dBLAmax (S time weighting) several times in any hour should be treated as being in NEC C, regardless of the LAeq,8H (except where the LAeq,8H already puts the site in NEC D).

(3) Aircraft noise: daytime values accord with the contour values adopted by the Department of Transport which relate to levels measured 1.2m above open ground. For the same amount of noise energy, contour values can be up to 2 dB(A) higher than those of other sources because of ground reflection effects.

(4) Mixed sources: this refers to any combination of road, rail, air and industrial noise sources. The "mixed source" values are based on the lowest numerical values of the single source limits in the table. The "mixed source" NECs should only be used where no individual noise source is dominant.

To check if any individual noise source is dominant (for the purposes of this assessment) the noise level from the individual sources should be determined and then combined by decibel addition (remembering first to subtract 2 dB(A) from any aircraft noise contour values). If the level of any one source then lies within 2 dB(A) of the calculated combined value, that source should be taken as the dominant one and the site assessed against the appropriate NEC for that source, rather than using the "mixed source" NECs. If the dominant source is industrial noise see paragraph B17 of Annex B.

If the contribution of the individual noise sources to the overall noise level cannot be determined by measurement and/or calculation, then the overall measured level should be used and the site assessed against the NECs for "mixed sources".

2.5 The NEC noise levels should not be used to assess the impact of industrial noise on proposed residential development because the nature of this type of noise, and local circumstances, may necessitate individual assessment and because there is insufficient information on people's response to industrial noise to allow detailed guidance to be given. However, at a mixed noise site where

industrial noise is present but not dominant, its contribution should be included in the noise level used to establish the appropriate NEC.

2.6 Determining the NEC category for a given Site is useful for determining the likely level of noise mitigation that may be required in order to make a Site suitable for residential use. TAN 11 goes on to cite specific British Standards which should be used for the assessment of transportation noise and industrial/commercial noise. Indeed, TAN 11 references BS8233 and BS4142 which offer noise criteria for residential habitable areas with regards to transportation and industrial noise sources.

Local Authority Guidance and Criteria – Denbighshire County Council's Environmental Health Department

2.7 Professional Consult contacted Denbighshire County Council on the 12th September 2019, via the Council's main email address 'customerservice@denbighshire.gov.uk' and the following was stated:

'We have been appointed by a client to complete a Noise Impact Assessment for a proposed commercial development (comprising a number of A3 uses including drive-through facilities) to the rear of the dwellings located on Grove Road in Denbigh. The Site is bound by existing residential dwellings off Grove Road to the south and a car repair garage to the east. To the north and west lies open and wooded land.

Professional Consult will complete the following noise survey work:

1. *A source noise measurement at a number of an existing drive-through retail unit in order to measure the level of noise impact associated with the use; and*
2. *A background and ambient noise survey will be completed at the rear of the dwellings in order to establish the existing background and ambient noise climate.*

Professional Consult will complete the following noise impact assessments:

1. *Mechanical & Electrical Plant Noise: An assessment of noise associated with operation of the retail units will be assessed in accordance with BS4142:2014+A1:2019. Where details of such mechanical plant are unknown., Professional Consult will set mechanical plant noise emission limits based on the background sound level and the criteria presented in BS4142:2014+A1:2019; and*
2. *Noise from people ordering food: An assessment will be completed which considers the change in ambient noise level at the closest residential receptors in line with the criteria presented in 'Guidelines for Environmental Impact Assessment' issued by IEMA.*

Where exceedances of the criteria are identified, Professional Consult will recommend appropriate and reasonable mitigation measures to ensure that the adopted noise level criteria is not exceeded at the closest residential dwellings.'

BS4142:2014+A1:2019 'Methods for rating and assessing industrial and commercial sound'

2.8 This standard describes methods for rating and assessing sound of an industrial or commercial nature which includes:

- Sound from industrial and manufacturing processes;
- Sound from fixed installations which comprise mechanical and electrical plant and equipment;
- Sound from the loading and unloading of goods and materials at industrial and / or commercial premises; and,
- Sound from mobile plant and vehicles that is an intrinsic part of the overall sound emanating from processes or premises, such as that from forklift trucks, or that from train or ship movements on or around an industrial or commercial Site.

2.9 The procedure detailed in the standard compares the measured or predicted noise level 'the specific noise level' from any of the above detailed noise sources with the background sound level at a residential dwelling. The measured background sound level at a receptor should be reliable and should not necessarily ascertain a lowest measured background sound level, but rather to quantify what is 'typical.'

2.10 The specific noise level also acknowledges the following reference time intervals depending upon whether the noise source operates during daytime or night-time periods:

- Daytime (07:00 - 23:00): 1 hour; and
- Night-time (23:00 - 07:00): 15 minutes.

2.11 There are a number of 'penalties' which can be attributed to the specific sound level, either subjectively or objectively, depending upon the 'acoustic features' of the sound level under investigation as follows. These penalties vary in their weighting depending upon the severity of the acoustic feature, as follows (with regards to the subject method):

<u>Tonality</u>

- +2dB: where the tonality is just perceptible;
- +4dB: where the tonality is clearly perceptible; and
- +6dB: where the tonality is highly perceptible.

<u>Impulsivity</u>

- +3dB: where the impulsivity is just perceptible;
- +6dB: where the impulsivity is clearly perceptible; and
- +9dB: where the impulsivity is highly perceptible.

<u>Intermittency</u>

- +3dB: where the intermittency is readily distinctive against the acoustic environment.

2.12 Where the assessment is carried out using the objective method, the tonality penalty is either 0dB or 6dB and the impulsivity penalty can range from 0dB up

to 9dB in increments of 1dB, depending on the level of impulsivity identified.

2.13 In addition to the above acoustic features, there is a penalty for 'other sound characteristics' of +3dB where a sound exhibits characteristics that are neither tonal nor impulsive, though is readily distinctive against the acoustic environment.

2.14 BS4142 goes on to state that the rating level is equal to the specific sound level if there are no such features present or expected to be present.

2.15 Assessment of the rating level relative to the background noise level can yield the following commentary:

- Typically, the greater this difference (between the rating level and the background sound level), the greater the magnitude of impact;
- A difference of around +10dB or more is likely to be an indication of a significant adverse impact, depending on the context;
- A difference of around +5dB is likely to be an indication of an adverse impact, depending on the context; and
- The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact.

2.16 Whilst the amended 2019 Standard does make various references to it not being intended to assess noise impacts at indoor locations, section 1.1 does state 'The methods described in this British Standard use outdoor sound levels to assess the likely effects of sound on people who might be inside or outside a dwelling or premises used for residential purposes upon which sound is incident'. Example 6 in the Standard states 'In addition to the rating/background sound level comparison shown in Table A.6, the primary concern is the potential for disturbance of residents who could be sleeping with open bedroom windows. Other guidance, such as BS 8233, might also be applicable in this instance'. Furthermore, Example 8, which considers night-time commercial noise impacts at a dwelling states 'BS 8233 indicates that 40 dBA sound level from the plant, equating to an internal level of around 30 dBA or possibly lower, but with some acoustically distinguishing characteristics, may not be suitable for a bedroom.'

2.17 With the above in mind, and for a clear need to ensure that any potential commercial or industrial noise impacts at the building façade do not give rise to internal noise level which causes sleep disturbance in bedrooms, this Assessment will ensure that the predicted rating level (specific sound level including any character corrections) does not exceed 30dB in bedrooms.

3.0 NOISE SURVEYS

Commercial Noise Survey for Waste Water Treatment Works

3.1 Professional Consult has taken a noise measurement in close range to the operating pump house at the Waste Water Treatment Works (WWTW). Due to the low level of noise produced by the WWTW, noise measurements had to be completed when road traffic noise levels from the A55 North Wales Expressway were suppressed and so noise measurements were completed on Sunday 15th September between 06:17 and 06:21. Given the steady-state nature of the noise emitted with no variations, a short duration noise measurement was considered to be adequate and reliable to inform the Assessment.

3.2 Table 3 summarises the measured noise levels.

Table 3. Summary of Measured Noise Levels

Operation	Measured Noise Level (dB)	On-time (minutes)	Measurement Distance (m)
Pump House	41.8 $L_{Aeq,1hr}$	Continuous	10

Background Sound Survey

3.3 Professional Consult has completed a background sound survey as follows:

- Located to the north east of the proposed residential development in the absence of any commercial sound. The background sound survey was completed from 07:00 on Sunday 15th September 2019 – 07:00 on Monday 16th September. It should be noted that background sound levels are generally at their lowest on a Sunday and so this measurement period will afford a worst-case Assessment.

3.4 Table 4 summarises the measured background sound levels for both daytime and night-time periods.

Table 4. Summary of Measured Noise Levels

Period	Measured Background Sound Levels (dB)	
	Range	Median (Typical)
Daytime	35.7 – 47.6	41.0
Night-time	34.1 – 43.5	40.1

Survey Equipment

3.5 The following equipment was used for the Noise Surveys.

Table 5. Noise Measurement Equipment

Measurement Position	Equipment Description	Manufacturer & Type No	Serial No.	Calibration Due Date
Source Noise and Background Noise Measurements	Sound Level Meter	01dB Fusion	12211	09 September 2021
	Pre-amplifier	01dB PRE22	1915082	
	Microphone	GRAS 40CD	331766	
	Calibrator	01dB CAL-31	89095	17 July 2020

3.6 The sound level meters were field calibrated prior to and following the survey and no significant drift was identified.

3.7 During the noise surveys the weather conditions were conducive to the measurement of environmental noise, i.e. wind speeds of no more than 5m/s and dry conditions.

Table 6. Range of Measured Wind Speeds

Period	Range of Measured Wind Speeds (m/s)	Rainfall Recorded?
Background Sound Survey	0 – 3.7	No

4.0 NOISE IMPACT ASSESSMENT

4.1 The Noise Impact Assessment has considered the noise impact from the pumping station associated with the WWTW at the proposed plots No.14 and 15, the gardens of which lie closest to the WWTW.

4.2 Table 7 calculates the specific level of noise from the WWTW in the garden area of No.15.

Table 7. Calculation of Specific Noise Level at Receptors

Measured Noise Level, $L_{Aeq,T}$ (dB)	Measurement Distance (m)	Distance to Receptor (m)	Screening or Barrier Attenuation (dB)	Calculated Noise Level at Receptor (dB)
41.8	10	72	0	24.7

4.3 The following has been considered in determining if any acoustic features exist in the predicted noise level at the closest residential receptors:

- Tonality - In determining if any tones exist in the measured noise levels, the methodology set out in BS4142:2014 has been followed using the objective method – either a 0dB penalty is allocated where no tones are present or 6dB penalty is allocated where tonality is present;
- Impulsivity – in determining if any impulsiveness is evident in the measured noise levels, the methodology set out in BS4142:2014 has been followed using the objective method which can result in a penalty from 0dB to 9dB being allocated depending upon the extent of impulsiveness;
- Intermittency – whether or not the measured operations turn on or off during the assessment period; and
- Other sound characteristics – where no penalties are allocated for the above features, but there will be an audible noise at the closest receptor.

4.4 Table 8 allocates penalties.

Table 8. Allocation of Penalties

Measured Operation	Tonality Penalty (dB)	Impulsivity Penalty (dB)	Intermittency Penalty (dB)	Other sound characteristics Penalty (dB)
Pumping Station	6	0	0	0
Highest Penalty for 1-hr Assessment Period*	**6**	**0**	**0**	**0**
Total Overall Penalty to be added to Specific Noise	**+6**			

4.5 Table 9 completes the BS4142 Assessment for the Pumping Station.

Table 9. BS4142:2014 Assessment

Receptor	Overall Calculated Specific Noise Level at Receptor (dB)	Total Overall Penalty (dB)	Calculated Rating Level (dB)	Calculated Median (Typical) Background Sound Level $L_{A90,t}$ (dB)	Difference +/- (dB)
Plots No.14-15	24.7	+6	30.7	40.1	-9.4

4.6 Table 9 indicates that the rated level of noise falls below the lowest typical background sound level and so there is no requirement to consider mitigation measures.

5.0 MITIGATION

5.1 The previous section has determined that the rated level of noise from the Pumping Station falls below the lowest typical background sound level and so there is no requirement to consider noise mitigation measures.

6.0 CONCLUSION

6.1 Professional Consult Limited was instructed by Egniol Environmental Limited, on behalf of Maxi Developments Ltd to prepare a Noise Impact Assessment for a proposed residential development at Bryn Morfa in Bodelwyddan, Denbighshire LL18.

6.2 It is understood that proposals include 28 residential dwellings to be located off Bryn Morfa. To the east of the Site lies Bodelwyddan Allotments and a WWTW and to the south and west lies existing residential dwellings. To the north lies an open field.

6.3 Given the proximity of the Site to the WWTW, it is understood that Denbighshire County Council have requested that a Noise Impact Assessment is completed in line with the guidance and criteria presented in BS4142:2014+A1:2019 which is applicable to the assessment of commercial and industrial noise impacts upon residential dwellings.

6.4 Accordingly, this Assessment has been completed with due regard to Technical Advice Note (Wales) 11, Noise (TAN 11) which is the over-arching guidance document adopted in Wales for determining potential noise impacts and the associated British Standards referenced therein, namely BS4142:2014+A1:2019.

6.5 This Assessment has shown that the level of noise generated by the WWTW falls below the lowest typical background sound level. As such, the advice offered in BS4142:2014+A1:2019 states that '*where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact'*.

6.6 In summary, noise generated by the WWTW should not be deemed to be a determining factor in the granting of planning permission for the Site.

APPENDIX 1 Limitations

This report and its findings should be considered in relation to the terms of reference and objectives agreed between Professional Consult Limited and the Client.

The executive summary, conclusions and recommendations sections of the report provide an overview and guidance only and should not be specifically relied upon without considering the context of the report in full.

Professional Consult cannot be held responsible for any use of the report or its contents for any purpose other than that for which it was prepared. The copyright in this report and other plans and documents prepared by Professional Consult is owned by them and no such plans or documents may be reproduced, published or adapted without written consent. Complete copies of this may, however, be made and distributed by the client as is expected in dealing with matters related to its commission. Should the client pass copies of the report to other parties for information, the whole report should be copied, but no professional liability or warranties shall be extended to other parties by Professional Consult in this connection without their explicit written agreement there to by Professional Consult.

APPENDIX 2 Glossary of Acoustic Terminology

Noise is defined as unwanted sound. Human ears are able to respond to sound in the frequency range 20 Hz (deep bass) to 20,000 Hz (high treble) and over the audible range of 0 dB (the threshold of perception) to 140 dB (the threshold of pain). The ear does not respond equally to different frequencies of the same magnitude, but is more responsive to mid-frequencies than to lower or higher frequencies. To quantify noise in a manner that approximates the response of the human ear, a weighting mechanism is used. This reduces the importance of lower and higher frequencies, in a similar manner to the human ear.

Furthermore, the perception of noise may be determined by a number of other factors, which may not necessarily be acoustic. In general, the impact of noise depends upon its level, the margin by which it exceeds the background level, its character and its variation over a given period of time. In some cases, the time of day and other acoustic features such as tonality or impulsiveness may be important, as may the disposition of the affected individual. Any assessment of noise should give due consideration to all of these factors when assessing the significance of a noise source.

The most widely used weighting mechanism that best corresponds to the response of the human ear is the 'A'-weighting scale. This is widely used for environmental noise measurement, and the levels are denoted as dB(A) or L_{Aeq}, L_{A90} etc., according to the parameter being measured.

The decibel scale is logarithmic rather than linear, and hence a 3 dB increase in sound level represents a doubling of the sound energy present. Judgement of sound is subjective, but as a general guide a 10 dB(A) increase can be taken to represent a doubling of loudness, whilst an increase in the order of 3 dB(A) is generally regarded as the minimum difference needed to perceive a change under normal listening conditions.

An indication of the range of sound levels commonly found in the environment is given in the following table.

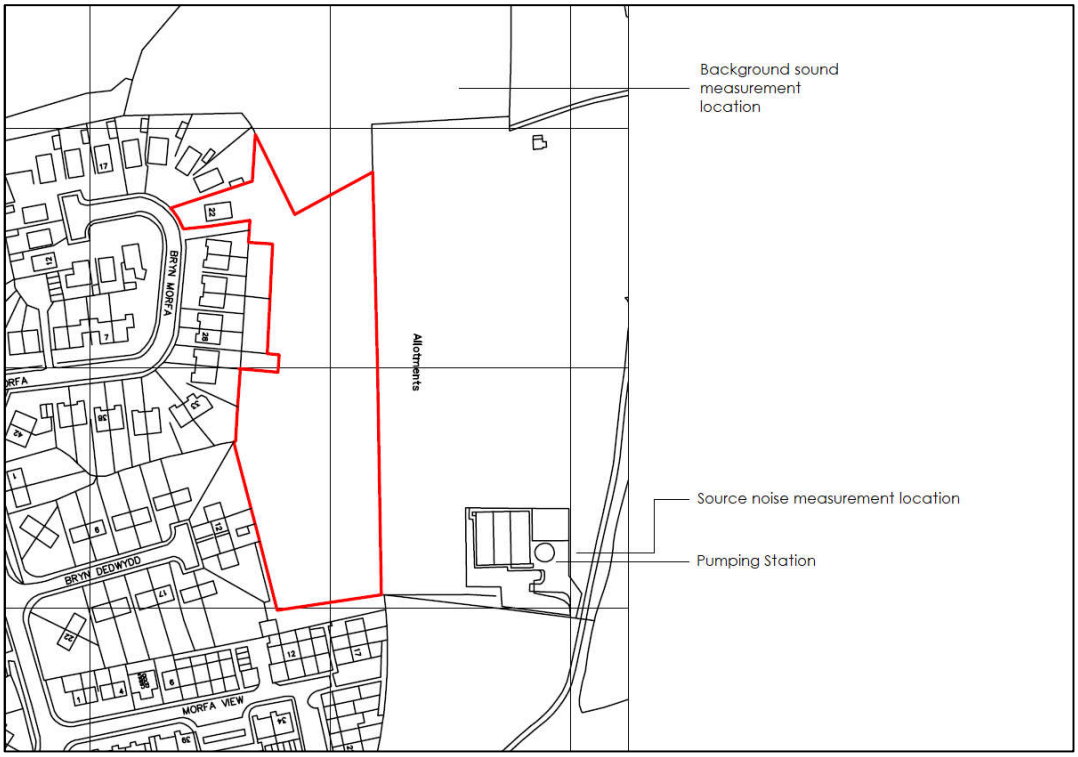
Typical Sound Pressure Levels

Sound Pressure Level (dB)	Location/Example
0	Threshold of hearing
20 - 30	Quiet bedroom at night
30 - 40	Living room during the day
40 - 50	Typical office
50 - 60	Inside a car
60 - 70	Typical high street
70 - 90	Inside factory
100 - 110	Burglar alarm at 1m away
110 - 130	Jet aircraft on take off
140	Threshold of pain

Terminology

Descriptor	Explanation
dB (decibel)	The scale on which sound pressure level is expressed. It is defined as 20 times the logarithm of the ratio between the root-mean-square pressure of the sound field and a reference pressure ($2x10^{-5}$Pa).
dB(A)	A-weighted decibel. This is a measure of the overall level of sound across the audible spectrum with a frequency weighting (i.e. 'A' weighting) to compensate for the varying sensitivity of the human ear to sound at different frequencies.
$L_{Aeq, T}$	L_{Aeq} is defined as the notional steady sound level which, over a stated period of time (T), would contain the same amount of acoustical energy as the A - weighted fluctuating sound measured over that period.
L_{Amax}	L_{Amax} is the maximum A - weighted sound pressure level recorded over the period stated. L_{Amax} is sometimes used in assessing environmental noise where occasional loud noises occur, which may have little effect on the overall Leq noise level but will still affect the noise environment. Unless described otherwise, it is measured using the 'fast' sound level meter response.
L_{10} & L_{90}	If a non-steady noise is to be described it is necessary to know both its level and the degree of fluctuation. The Ln indices are used for this purpose, and the term refers to the level exceeded for n% of the time. Hence L_{10} is the level exceeded for 10% of the time and as such can be regarded as the 'average maximum level'. Similarly, L_{90} is the 'average minimum level' and is often used to describe the background noise. It is common practice to use the L_{10} index to describe traffic noise.
Free-field Level	2A sound field determined at a point away from reflective surfaces other than the ground with no significant contributions due to sound from other reflective surfaces. Generally as measured outside and away from buildings.
Fast	A time weighting used in the root mean square section of a sound level meter with a 125millisecond time constant.
Slow	A time weighting used in the root mean square section of a sound level meter with a 1000millisecond time constant.

APPENDIX 3 Site location Plan & Noise Measurement Positions



APPENDIX 4 Background Sound Measurement Data

Period Start Time	Measured Sound Pressure Level (dB)	
	$L_{eq,1hr}$	$L_{90,1hr}$
15/09/2019 07:00	54.4	43.1
15/09/2019 08:00	51.4	44.1
15/09/2019 09:00	46.6	41.8
15/09/2019 10:00	47.1	40.0
15/09/2019 11:00	43.7	40.2
15/09/2019 12:00	42.8	38.4
15/09/2019 13:00	50.7	36.9
15/09/2019 14:00	45.0	37.1
15/09/2019 15:00	39.4	35.7
15/09/2019 16:00	39.6	35.8
15/09/2019 17:00	44.5	37.6
15/09/2019 18:00	50.1	47.6
15/09/2019 19:00	49.9	45.9
15/09/2019 20:00	50.0	47.0
15/09/2019 21:00	49.3	45.9
15/09/2019 22:00	45.1	43.4
15/09/2019 23:00	44.4	42.5
16/09/2019 00:00	47.4	43.5
16/09/2019 01:00	44.2	41.9
16/09/2019 02:00	40.0	37.8
16/09/2019 03:00	39.7	34.1
16/09/2019 04:00	40.4	37.4
16/09/2019 05:00	41.1	38.8
16/09/2019 06:00	48.8	41.3