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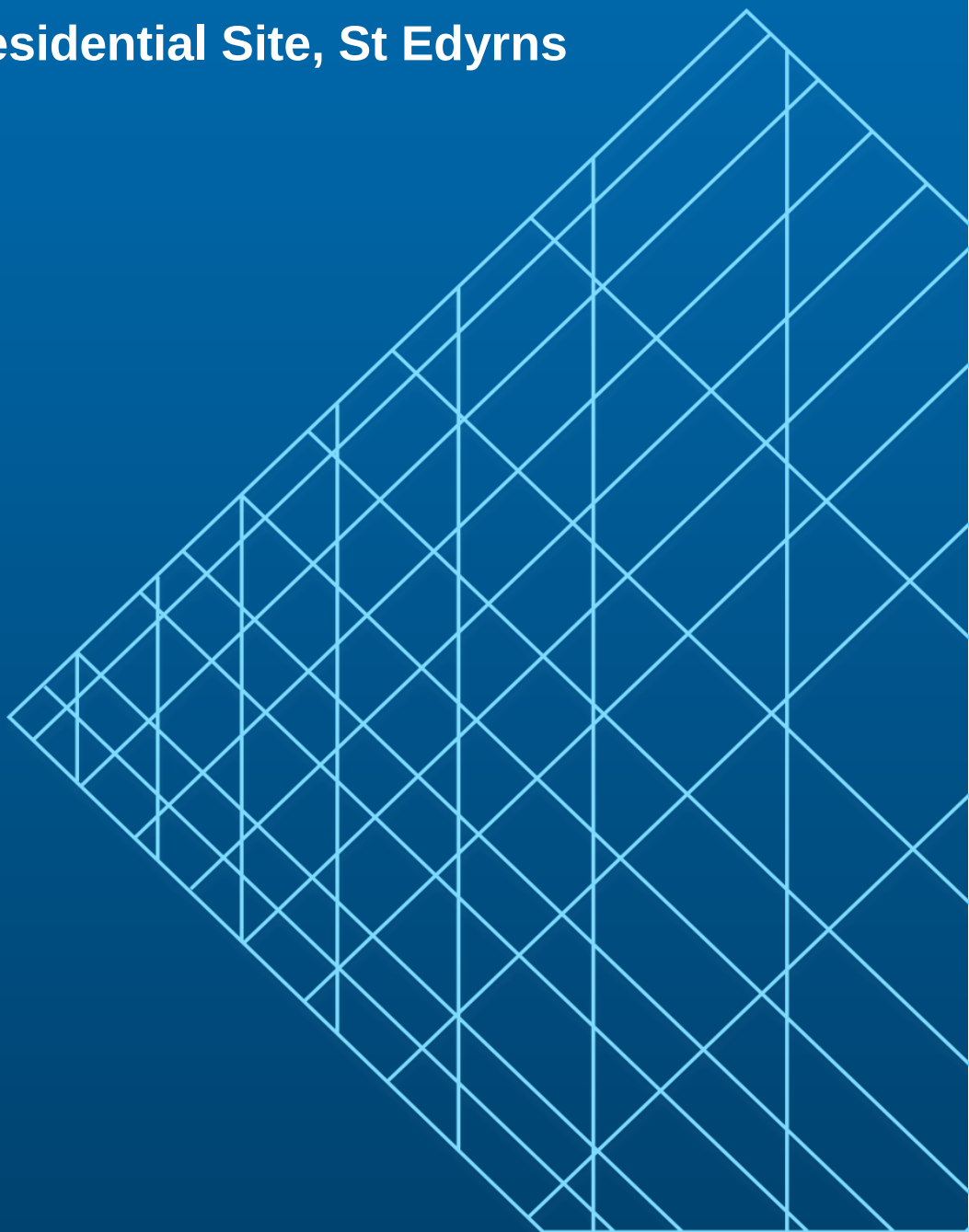
Environmental Noise Assessment

Tobin Land Residential Site, St Edyrns Cardiff

5795/ENS1



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Environmental Noise Assessment

Project:	**Tobin Land Residential Site, St Edyrns**
Site Address:	Bridge Road Cardiff CF3 6UZ
HA Reference:	5795/ENS1
Date:	26/05/2020
Client:	PMG Development Ltd Oak Tree Court Mulberry Drive CARDIFF CF23 8RS
Contact:	**Philippa Cole** pipcole@btinternet.com

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1. INTRODUCTION

A road traffic noise assessment is required for the Tobin Land Residential Site, St Edyrns, Bridge Road, Cardiff, CF3 6UZ.

The site is located approximately 250m south of the Junction 30 of the M4 (Cardiff Gate). The intervening greenfield land is scheduled for development in the near future. Bridge Road runs along the western site boundary with the Pentwyn Link Road beyond that.

This report is written as part of an Environmental Statement for the proposed development, and refers to Cardiff Council's standard road traffic planning conditions as issued for the sites immediately to the north.

This report has therefore been commissioned to assess environmental noise levels impinging on the site from the surrounding noise sources and compares them against current planning guidance and criteria in the planning conditions.

COVID-19 Restrictions
At the time of writing Government restrictions mean traffic flow rates (and therefore noise levels) are significantly lower than 'normal'. In line with Institute of Acoustics and Association of Noise Consultants guidance, we have referred to noise survey reports in the public domain for sites immediately to the north of this site. As it happens, one of the main surveys was carried out by Hunter Acoustics in 2019.

2. CRITERIA

2.1 Planning Conditions

The following show Cardiff Council's standard road traffic noise related planning conditions, as issued for the sites immediately north of the Tobin Land site;

"20) The details submitted in compliance with condition 1 of this permission shall, for each phase of the development, include a scheme for approval, in writing, by the Local Planning Authority, to provide that all habitable rooms exposed to external noise shall be subject to sound insulation measures to ensure that all such rooms achieve an internal noise level of 40 dBA Leq 16 hour during the day and 35 dBA Leq 8 hour at night.

The submitted scheme shall ensure that where mechanical ventilation to habitable rooms is required the proposed measures shall be provided with acoustically treated active ventilation units. Each ventilation unit (with air filter in position), by itself or with an integral air supply duct and cowl (or grille), shall be capable of giving variable ventilation rates ranging from: 1) an upper rate of not less than 37 litres per second against a back pressure of 10 newtons per square metre and not less than 31 litres per second against a back pressure of 30 newtons per square metre, to 2) a lower rate of between 10 and 17 litres per second against zero back pressure.

No habitable room shall be occupied until the approved sound insulation and ventilation measures have been installed in that room.

Reason: To ensure that the amenities of future occupiers are protected

21) The details submitted in compliance with condition 1 of this permission shall, for each phase of the development, include a scheme for the approval, in writing by the Local Planning Authority, a scheme verifying that a minimum of 50% of the garden area has been designed so that maximum daytime noise levels shall not exceed 55dB LAeq,16hr.

Reason: To ensure that the amenities of future occupiers are protected."

Internal noise levels quoted in the planning condition are in line with 'reasonable' internal ambient noise level criteria for habitable rooms quoted in British Standard 8233:2014 referenced in section 2.2 below.

2.2 British Standard 8233:2014

British Standard 8233:2014 'Guidance on sound insulation and noise reduction for buildings' includes internal noise criteria of habitable rooms in residential dwellings, as shown below in Table 2.1;

Table 2.1 - BS8233:2014 Internal Ambient Noise Level Criteria for Habitable Rooms

Location	Desired		Reasonable *	
	07:00 to 23:00	23:00 to 07:00	07:00 to 23:00	23:00 to 07:00
Living room	35 dB $L_{Aeq,16hr}$	-	40 dB $L_{Aeq,16hr}$	-
Dining room/area	40 dB $L_{Aeq,16hr}$	-	45 dB $L_{Aeq,16hr}$	-
Bedroom	35 dB $L_{Aeq,16hr}$	30 dB $L_{Aeq,8hr}$	40 dB $L_{Aeq,16hr}$	35 dB $L_{Aeq,8hr}$

* NOTE 7 states "Where development is considered necessary or desirable, despite external noise levels above WHO guidelines, the internal target levels may be relaxed by up to 5dB and reasonable internal conditions still achieved.

Section 7.7.3.2 of BS 8233:2014 entitled 'Design criteria for external noise' states;

"For traditional external areas that are used for amenity space, such as gardens and patios, 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. However, it is also recognised that these guideline values are not achievable in all circumstances where development might be desirable. In higher noise areas, such as city centres or urban areas adjoining the strategic transport network, a compromise between elevated noise levels and other factors, such as the convenience of living in these locations or making efficient use of land resources to ensure development needs to be met, might be warranted. In such a situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces, but should not be prohibited."

3. ENVIRONMENTAL NOISE SURVEY

An environmental noise survey report was prepared by SLR Global Environmental Solutions for both the Environmental Statement (ES) and Phase 1 of the Persimmon St Edyrns village site north of the Tobin Land site. The SLR report Ref: 403.00776.00033 dated April 2014, includes noise map models of the overall site in its undeveloped state, which were based on measured noise levels from a noise survey undertaken in February 2013 for the original 2013 Environmental Statement.

As noise was only monitored at one location on the critical northern boundary with the M4 motorway, Hunter Acoustics undertook additional unattended continuous monitoring and sample measurements as part of the assessment for phases 5 & 6 of the Persimmon sites in February 2019 to allow an up-dated noise model to be generated. Results of this assessment are detailed in Hunter Acoustics report 5251/ENS1-Rev 2 dated 3/12/2019.

Both the SLR and Hunter Acoustics reports for the St Edyrns Village sites are in the public domain. Reference is made to the results of these assessments in this report, due to the current atypical ambient traffic noise climate with the on-going CoVid 19 lockdown restrictions

3.1 SLR Report Ref: 403.00776.00033 dated April 2014 (Survey February 2013)

The SLR report detailed results of 63.7dB $L_{Aeq,16hr}$ daytime and 58.6dB $L_{Aeq,8hr}$ night-time at 43m from the M4; and 67.8dB $L_{Aeq,16hr}$ daytime and 58.6dB $L_{Aeq,8hr}$ night-time at 13m from the Pentwyn Link Road (A4232).

Daytime is therefore indicated to be the critical period (day/night difference > 5dB, which is typical of road traffic noise patterns).

3.2 Hunter Acoustics Report 5251/ENS1-R2 dated 3/12/2019 (Survey Feb' 2019)

Figure 3.1 below shows the location of the Tobin Land Site relative to the monitoring positions used;

Figure 3.1 – Site Plan Showing Monitoring Locations

Continuous Monitoring

The survey was undertaken on Monday 5th August 2019 for 24hrs at Positions A & B, on the critical site boundaries closest to the M4 Motorway and Pentwyn Link Road (A4232). Both positions were located 1.5m above local ground height to confirm $L_{Aeq,16hr}$ daytime and $L_{Aeq,8hr}$ night-time noise levels impinging the site for comparison with TAN 11 guidance and Cardiff Council's standard planning conditions.

Sample Measurements were undertaken at Positions 1-3, 1.5m above local ground height, in line with the Department of Transport's 'Calculation of Road Traffic Noise – Shortened Measurement Procedure' on 06/02/2019. This allows 16-hour daytime L_{Aeq} levels to be predicted from sample measurements taken over 3 consecutive hours between 1000-1700hrs, using procedures of CRTN and TAN 11.

Additional spot measurements were undertaken at positions 4 and 5, 5m above local ground height to aid calibration of the noise model.

3.2.1 Results

Results of continuous monitoring at Positions A and B are shown in Table 3.1 and Table 3.2 below. Time history graphs for each position are shown in Figure B.4 and Figure B.5 in Appendix B.

Table 3.1 - Position A Continuous Monitoring Results

Position A			
05/08/2019 - 06/08/2019	Daytime	0700-2300hrs	$L_{Aeq,16hr}$ = 59.8 dB
	Night-time	2300-0700hrs	$L_{Aeq,8hr}$ = 53.2 dB

Table 3.2 - Position B Continuous Monitoring Results

Position B			
05/08/2019 - 06/08/2019	Daytime	0700-2300hrs	$L_{Aeq,16hr}$ = 56.1 dB
	Night-time	2300-0700hrs	$L_{Aeq,8hr}$ = 48.8 dB

Note: There were no $L_{Amax,F}$ events exceeding 82dB during the night-time period at either position.

Position A; Daytime is 6.6dB higher than night-time level and is therefore the critical period.

Position B; Daytime is 7.3dB higher than night-time level and is therefore the critical period.

Overall, results show good agreement with the SLR monitoring discussed at the start of section 3 of this report.

Results of sample measurements taken in accordance with the Department of Transport's 'Calculation of Road Traffic Noise – Shortened Measurement Procedure' at Positions 1-3 are shown in Table 3.3 below;

Table 3.3 - CRTN Measurement at Positions 1-3

CRTN Position 1	L_{Aeq} (dB)	L_{A10} (dB)	$L_{Amax,F}$ (dB)
12:18-12:28hrs	61.6	63.8	66.8
13:49-13:59hrs	60.7	63.0	69.1
14:09-14:19hrs	61.0	62.8	69.8
Mean L_{10}	63.2		
**16hr L_{eq}	60.2		

CRTN Position 2	L_{Aeq} (dB)	L_{A10} (dB)	$L_{Amax,F}$ (dB)
12:34-12:44hrs *	60.0	61.9	70.6
13:36-13:46hrs	55.7	57.4	63.7
14:50-15:00hrs	56.8	58.2	66.2
Mean L_{10}	59.2		
**16hr L_{eq}	56.2		

CRTN Position 3	L_{Aeq} (dB)	L_{A10} (dB)	$L_{Amax,F}$ (dB)
12:49-12:59hrs *	61.1	63.2	66.7
13:18-13:28hrs	60.9	63.0	69.3
14:35-14:45hrs	62.0	64.3	67.5
Mean L_{10}	63.5		
**16hr L_{eq}	60.5		

**Predicted in accordance with CRTN and TAN11

** Note: The first measurement at CRTN position 2 was likely influenced by an excavator working with the archaeological team on site.*

Noise map models and assessments in subsequent sections are based on these results.

4. NOISE PREDICTIONS

Noise maps have been plotted using proprietary Noise Map Five software, which in turn uses methodology of the Department of Transport's 'Calculation of Road Traffic Noise' (CRTN).

A noise map has been plotted to allow road traffic noise levels to be predicted across the site including for distance and screening losses between new plots.

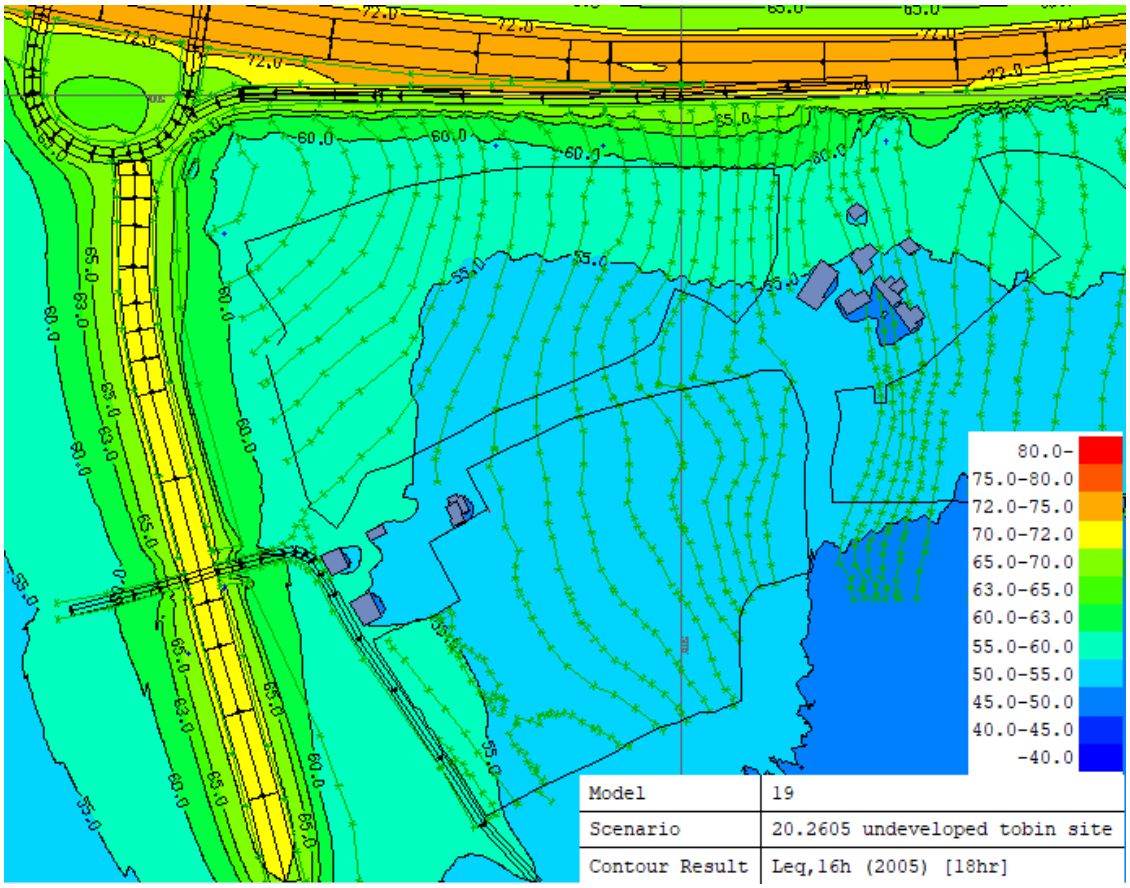
Drawings and topographical data used in our assessment are referenced in Appendix C.

Results from the noise surveys have been used to calibrate the noise maps.

4.1 Undeveloped Site

Figure 4.1 below shows predicted critical daytime noise levels at 1.5m above local ground level on the undeveloped site.

Figure 4.1 – $L_{eq,\ 16hr}$ Daytime (0700 – 2300hrs); Undeveloped Site (1.5m height)



4.2 Developed Site

Proposed site layout plan as shown in Figure 5.1 has been used for the developed model.

Note: 1.8m high closed boarded fences have been modelled around gardens (narrow red lines indicate fences).

Figure 4.2 and Figure 4.3 below show predicted road traffic daytime noise levels at 1.5m and 4.5m above local ground level across the developed site respectively.

Figure 4.2 – $L_{eq,\ 16hr}$ Daytime (0700 – 2300hrs); Developed Site (1.5m height)

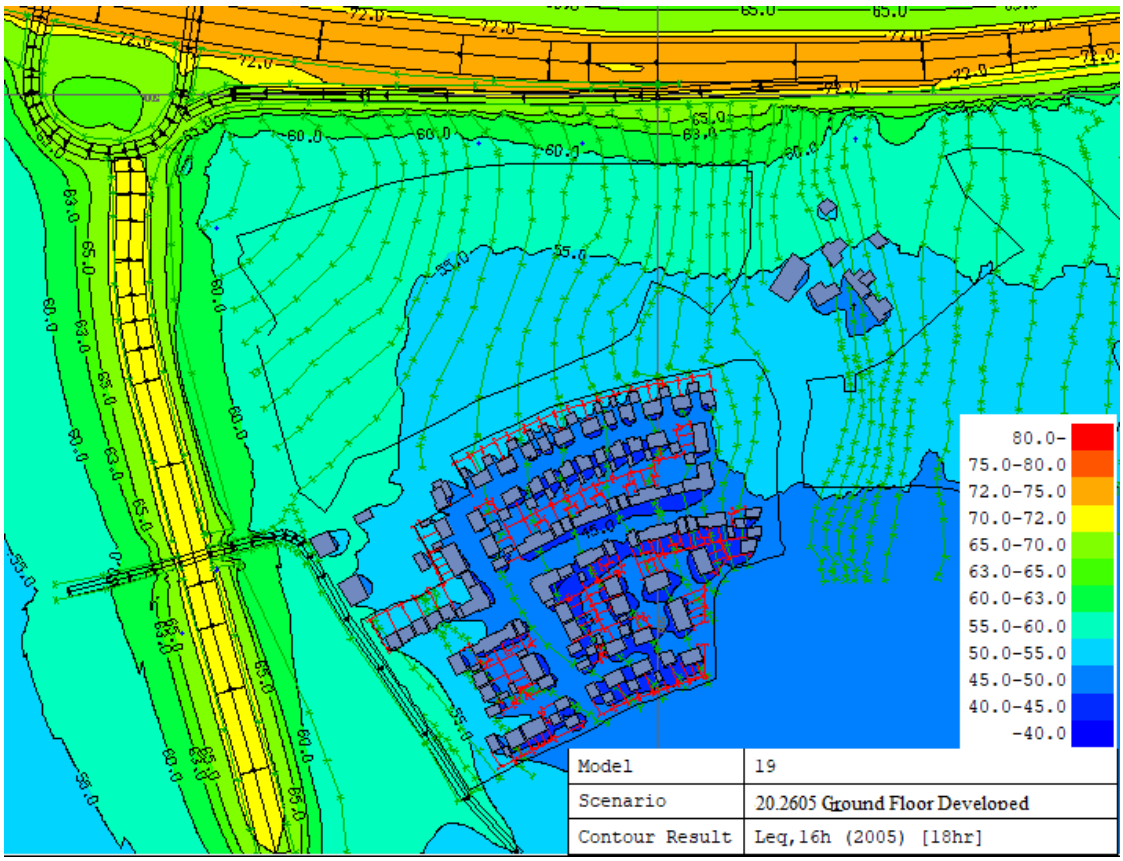
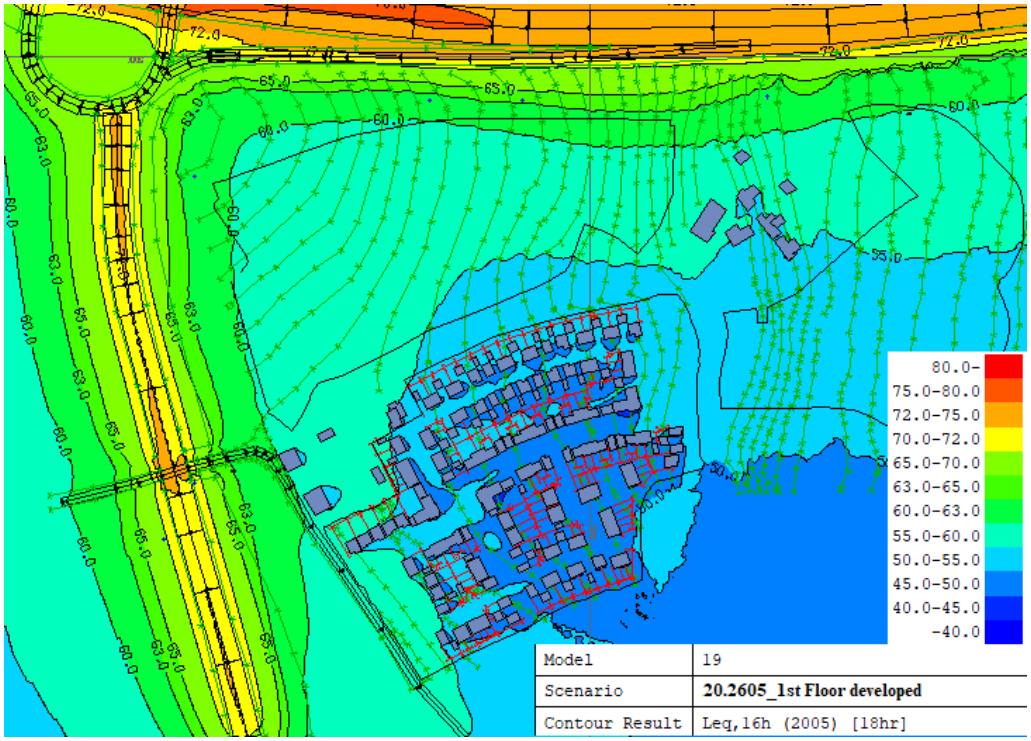


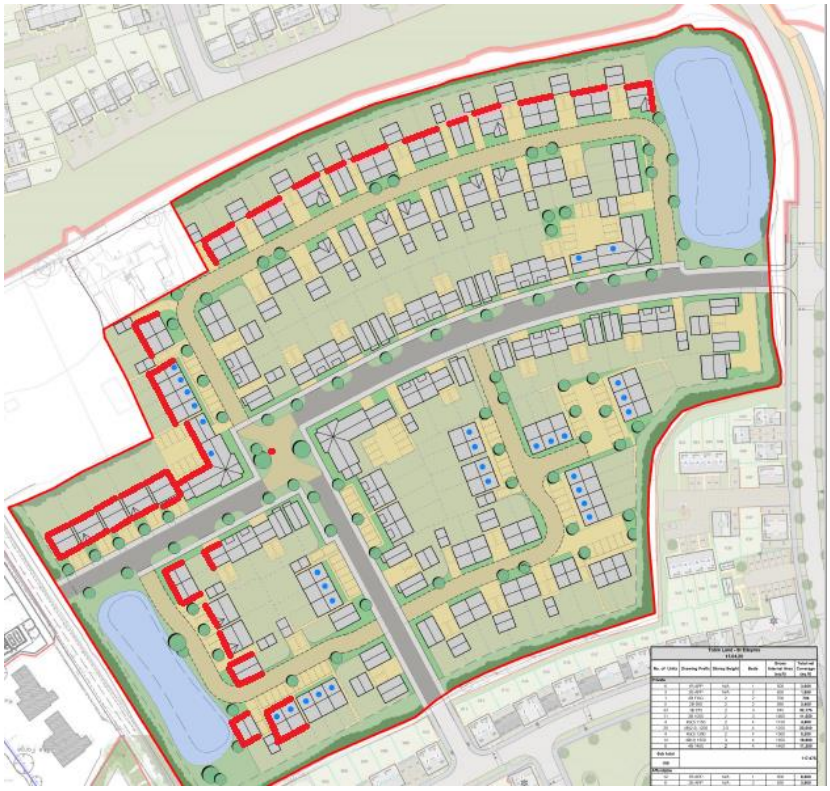
Figure 4.3 – $L_{eq, 16hr}$ Daytime (0700 – 2300hrs); Developed Site (4.5m height)



5. PRELIMINARY EXTERNAL BUILDING FABRIC ASSESSMENT

Worst case/Critical facades are shown on the site plan in Figure 5.1 below, marked up with a **RED** line.

Figure 5.1 – Facades Requiring Additional Sound Insulation



Traffic noise levels at proposed residential façade lines are at worst;

a) Ground Floor: between 50-55dB $L_{Aeq(16\ hour)}$ along north and west boundaries.
b) 1st Floor: between 55-60dB $L_{Aeq(16\ hour)}$ along north and west boundaries

Taking a 15dB loss through a partially open window (World Health Organisation), the 40dB internal daytime criterion from Cardiff's standard condition is indicated to be marginally exceeded at first floor level (4.5m above local ground height).

Note: Habitable rooms include bedrooms, lounges, dining rooms and kitchen/diners but not kitchens or bathrooms.

All habitable rooms, **at first floor level** on façades highlighted above in **RED**, require acoustic glazing with mechanical ventilation as specified below, to give residents the option to close windows while maintaining airflow levels.

For remaining facades standard thermal double glazing/trickle vents indicated sufficient.

5.1 External Walls

The following external wall construction has been used in our analysis;

• Brick / 75mm cavity / 100mm block

The following SRI performance figures are taken from BS 8233:2014 for "Brick and block external wall" and estimated figures are used for the timber frame sections.

Table 5.1– Wall Sound Reduction Index Figures

Element	Description	Sound Reduction Index, *R* (SRI: BS EN ISO 140) at Octave Band Centre Frequency (Hz)				
		125	250	500	1k	2k
Wall	Brick/Block Cavity	40	44	45	51	56

The successful tenderer must provide independent laboratory test data showing their wall systems meet the above performance requirements.

5.2 Roof

The following roof construction has been used in our analysis;

• Pitched tiles on felt roof, 9mm plasterboard ceiling + 100m insulation.

The following minimum SRI performance figures are taken from BS 8233:2014: "tiles on felt roof with 100mm mineral wool on plasterboard ceiling";

Table 5.2 – Roof Sound Reduction Index Figures

Element	Description	Sound Reduction Index, *R* (SRI: BS EN ISO 140) at Octave Band Centre Frequency (Hz)				
		125	250	500	1k	2k
Roof	Roof tile, 200mm joists with 175mm Isover Insulation, 12.5mm standard plasterboard	23	39	52	54	57

If Mansard room in roof sections are proposed, the pitched roof shall be insulated to meet a minimum Rw45 weighted sound reduction index on critical plots identified in Figure 5.1 – Facades Requiring Additional Sound Insulation*above.*

5.3 Ventilation

All habitable rooms on critical facades highlighted in Figure 5.1 – Facades Requiring Additional Sound Insulation*above* require a ventilation strategy that does not rely on opening windows to achieve 'whole building' and 'extract' ventilation rates as required by Building Regulations Part F:

System 3: **Continuous mechanical extract.** Guidance on minimum provisions for extract and whole building ventilation is set out in table 1.2c.

System 4: **Continuous mechanical supply and extract with heat recovery.** Guidance on minimum provisions for extract and whole building ventilation is set out in Table 1.2d.

If System 3 (MEV) is used to provide fresh air through (background) trickle ventilators, the trickle ventilators shall be acoustically treated to achieve the following performance;

Table 5.3 – Acoustic Trickle Ventilator Specifications

Element	Description	$D_{n,e}$ at Octave Band Centre Frequency (Hz)				
		125	250	500	1k	2k
Ventilator	For budgetary guidance: based on Renson AK80/3 (open)	37	32	34	46	52

The calculation has allowed for a maximum of 2 acoustic trickle ventilators per room.

The successful tenderer shall provide independent laboratory test data showing their vent meets the above performance requirements.

Alternatively, a System 4 (MVHR) could be utilised which does not require any trickle vents in the external façade.

The MVHR system should be designed to ensure that inlet and discharge ducts/grilles do not face the road. The system shall also be designed to meet NR25 in bedrooms, in line with CIBSE guidance.

Do not include standard trickle ventilation within window frames on critical facades.

Final proposals should be confirmed with Building Control and Environmental Health prior to orders being placed.

5.4 Glazing

Figure 5.1 shows façades where windows require up-rating. The following sound reduction index figures shall be met for glazing on these critical façades:

Table 5.4 – Window Sound Reduction Index Figures

Element	Description	Sound Reduction Index, *R* (SRI: BS EN ISO 140) at Octave Band Centre Frequency (Hz)				
		125	250	500	1k	2k
Windows	For budgetary guidance: based on Pilkington 6mm / 6 – 16mm / 4mm	21	20	25	38	37

A typical glazing system that should be capable of achieving the quoted SRI figures (based on Pilkington test data) is included in the table for initial budgetary guidance, however;

The successful glazing suppliers shall provide independent laboratory test data confirming their proposed systems (including frames/seals) meet the quoted octave band sound reduction performance figures above.

For all other façades standard thermal double-glazing and trickle ventilation is indicated to be sufficient.

5.5 Overheating

Our assessment recommends acoustic glazing and mechanical ventilation on critical facades, to control noise intrusion. This is based on windows normally being closed (excluding purge ventilation).

If there is a risk of overheating on any of the facades, requiring windows to be opened more frequently, a more detailed assessment would be required – please advise.

6. GARDENS / OUTDOOR LIVING SPACES

Noise map Figure 4.2 indicates the 55dB(A) in 50% of garden areas criterion is achieved in all private garden areas to dwelling-houses with the proposed 1.8m high closed boarded fences.

7. CONCLUSION

A road traffic noise assessment has been undertaken for the Tobin Land Residential Site, St Edyrns, Bridge Road, Cardiff, CF3 6UZ.

Road traffic is indicated to control the ambient noise climate day and night.

Environmental noise surveys carried out prior to the current CoVid 19 restrictions have been used to calibrate noise maps across the proposed site.

These surveys indicated that daytime is the critical period when assessing traffic levels against criteria quoted in Cardiff Council's standard traffic noise conditions.

Acoustic glazing and ventilation to habitable rooms are indicated to be required on critical facades at first floor level only, and preliminary specifications are included in this report.

Final specifications to be confirmed once final site layouts and plot floor plans are confirmed at detailed design stage. Implications for the external building fabric are not indicated to be onerous.

Noisemap models indicate the garden noise criterion of 55dB $L_{Aeq,16hr}$ is achieved with 1.8m closed boarded fences to gardens.

APPENDIX A - ACOUSTIC TERMINOLOGY

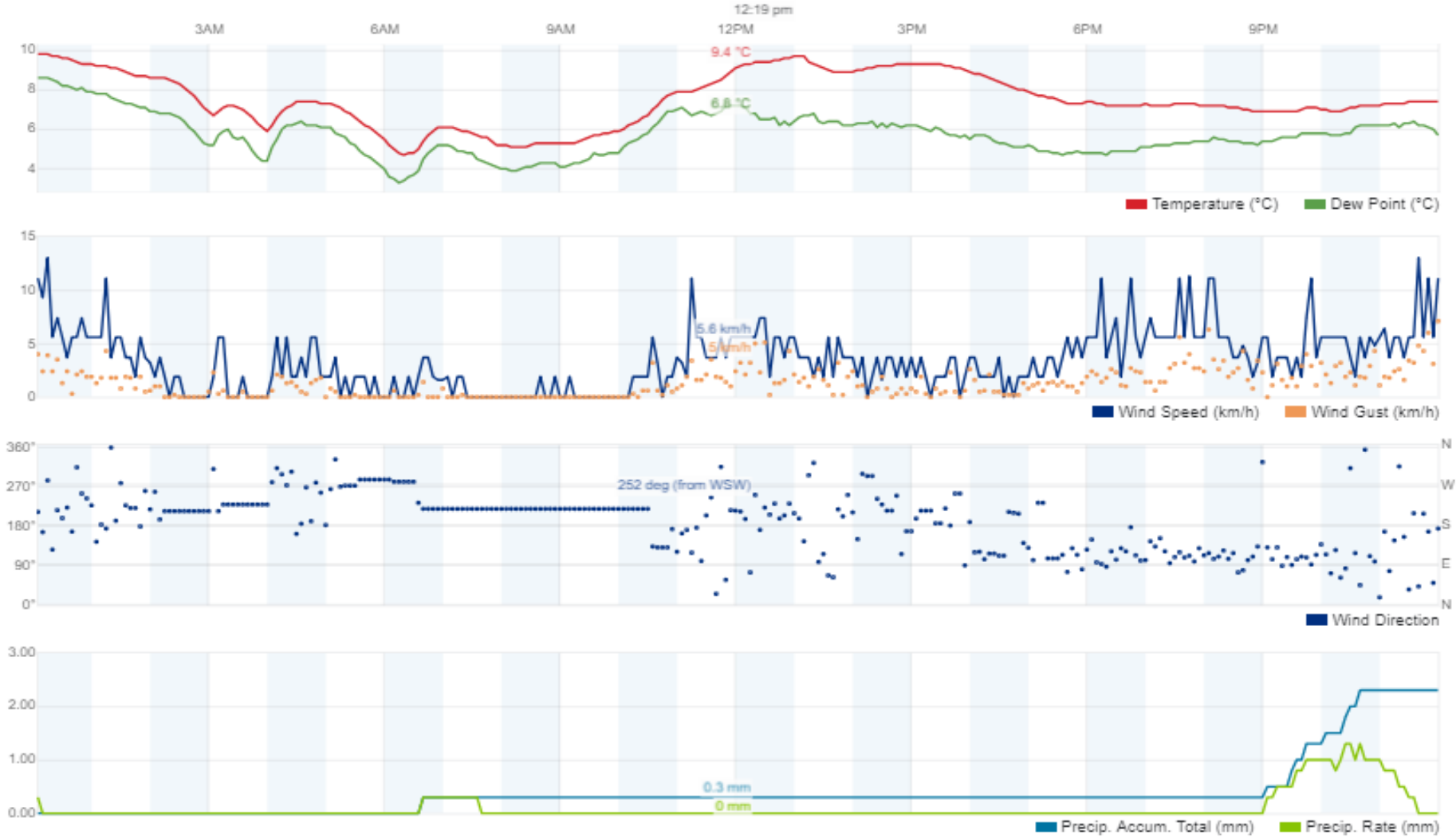
Human response to noise depends on a number of factors including loudness, frequency content and variations in level with time. Various frequency weightings and statistical indices have been developed in order to objectively quantify 'annoyance'.

The following units have been used in this report:

dB(A)	The sound pressure level A-weighted to correspond with the frequency response of the human ear and therefore a persons' subjective response to frequency content.
L_{eq}	The equivalent continuous sound level is a notional steady state level which over a quoted time period would have the same acoustic energy content as the actual fluctuating noise measured over that period.
L_{max}	The highest instantaneous sound level recorded during the measurement period.
L_{10}	The sound level which is exceeded for 10% of the measurement period. i.e. The level exceeded for 6 minutes of a 1 hour measurement - used as a measure of background noise.
L_{90}	The sound level which is exceeded for 90% of the measurement period. i.e. The level exceeded for 54 minutes of a 1 hour measurement - used as a measure of background noise.
R_w	Weighted Sound Reduction Index. R_w is a single number (dB) referring to the ability of a wall or other building structure to provide sound insulation. The higher the number, the better the sound insulation. R_w refers to sound insulation achieved in an acoustic testing laboratory.

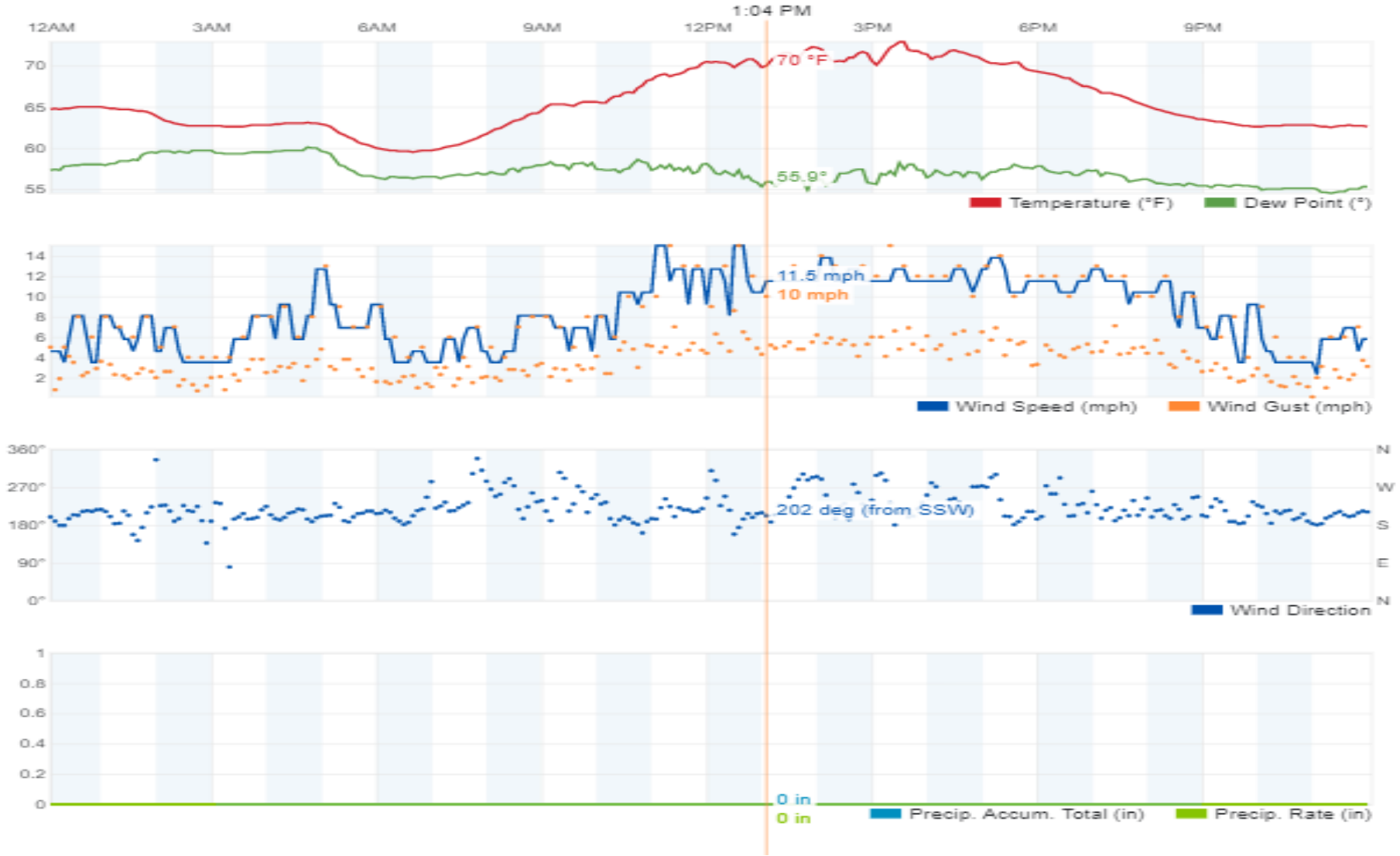
APPENDIX B - DIAGRAMS, GRAPHS AND TABLES

Figure B.1 - Approximate Weather History for Sample Measurements (1100hrs 06/02/2019 – 1500hrs 06/02/2019)



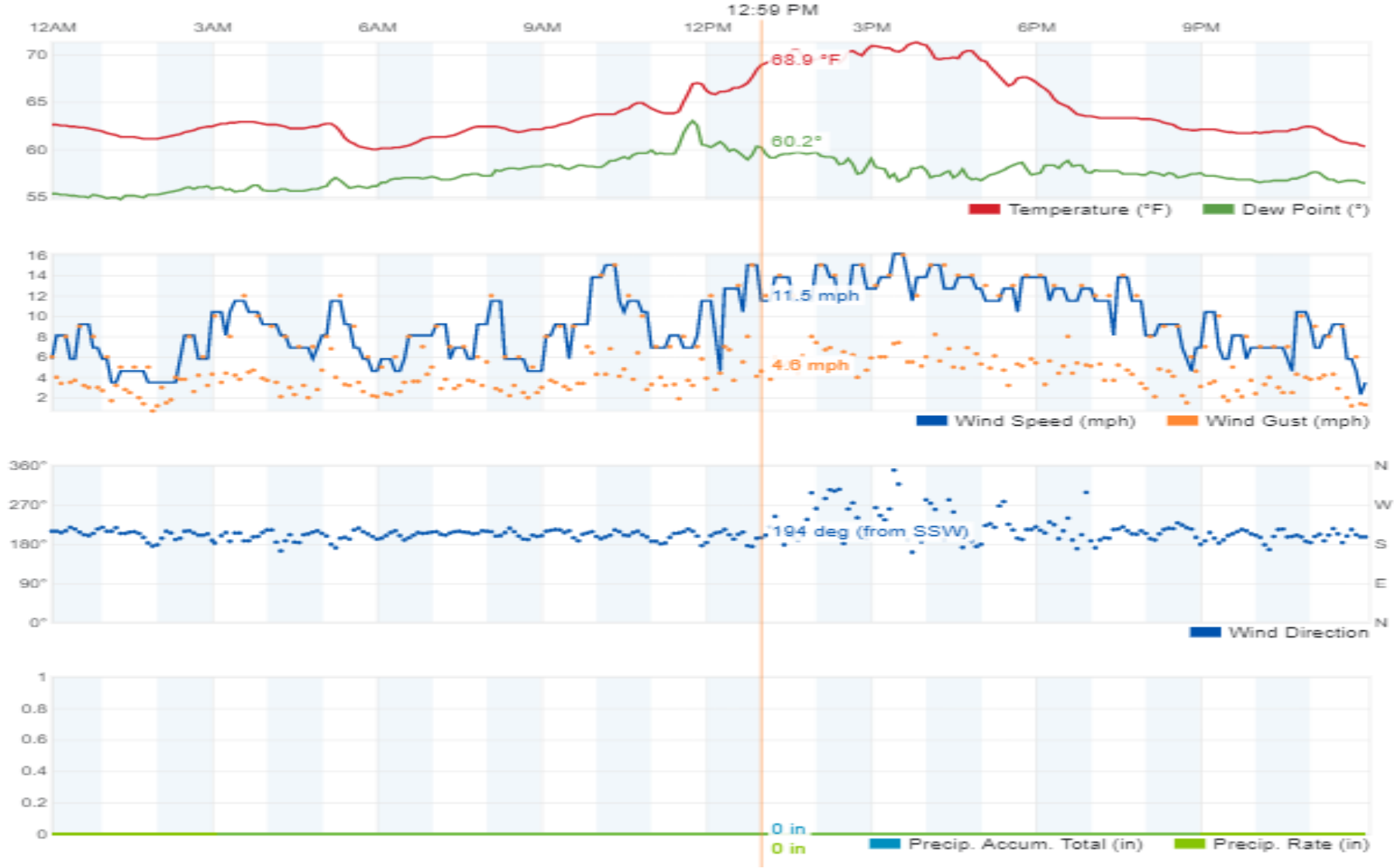
** Taken from www.wunderground.com - weather station ICARDIFF59 located at St Ederyn's Village [N 51 ° 32 ' 12 ", W 3 ° 7 ' 31 "]*

Figure B.2 - Approximate Weather History for Continuous Monitoring (1300hrs 05/08/2019)



** Taken from www.wunderground.com - weather station ICARDIFF59 located at St Ederyn's Village [N 51 ° 32 ' 12 ", W 3 ° 7 ' 31 "]*

Figure B.3 - Approximate Weather History for Continuous Monitoring (1300hrs 06/08/2019)



** Taken from www.wunderground.com - weather station ICARDIFF59 located at St Ederyn's Village [N 51 ° 32 ' 12 ", W 3 ° 7 ' 31 "]*

Figure B.4 – Position A Time History Graph (1300hrs 05/08/2019 – 1300hrs 06/08/2019)

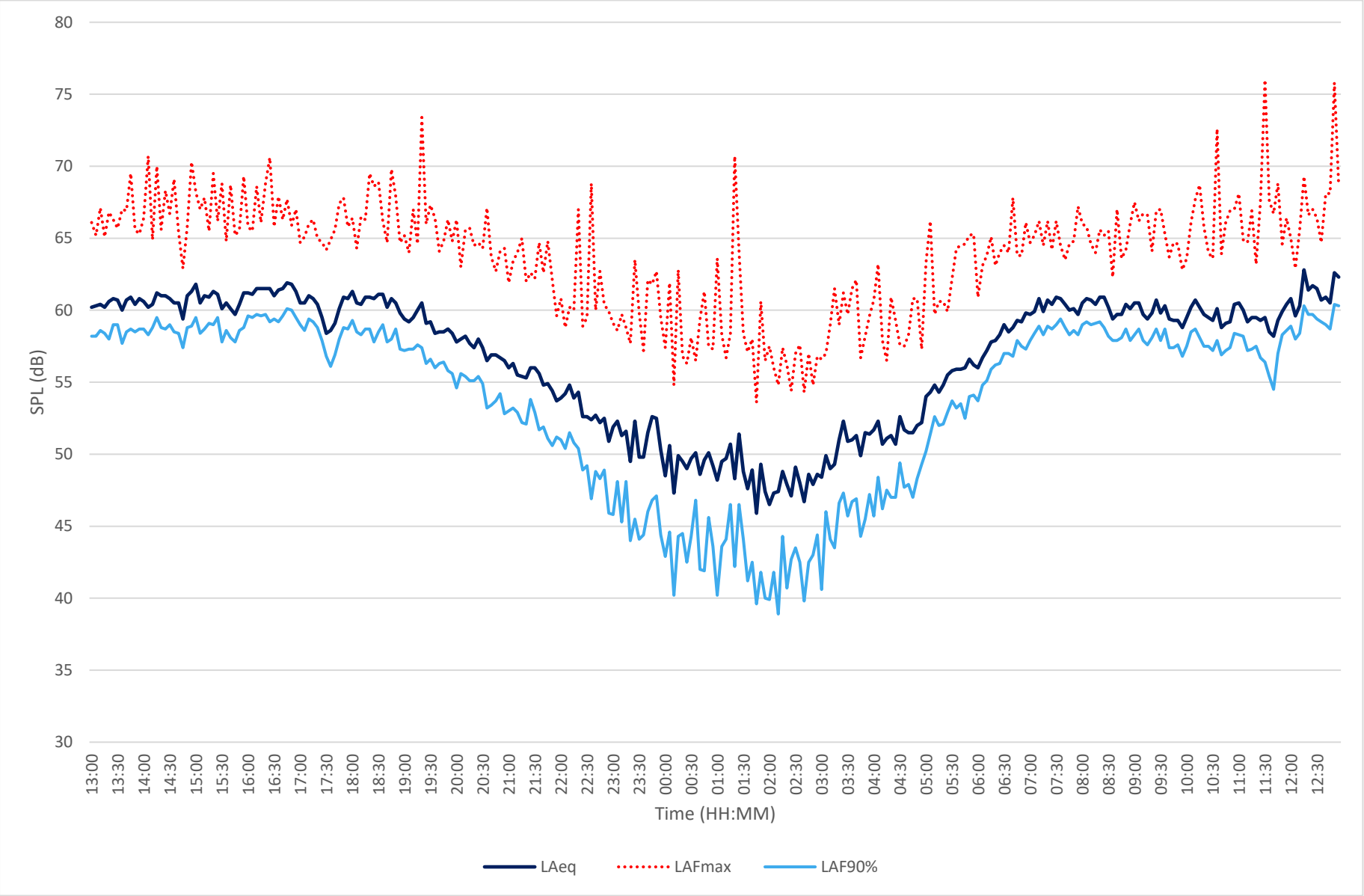


Figure B.5 - Position B Time History Graph (1300hrs 05/08/2019 – 1300hrs 06/08/2019)

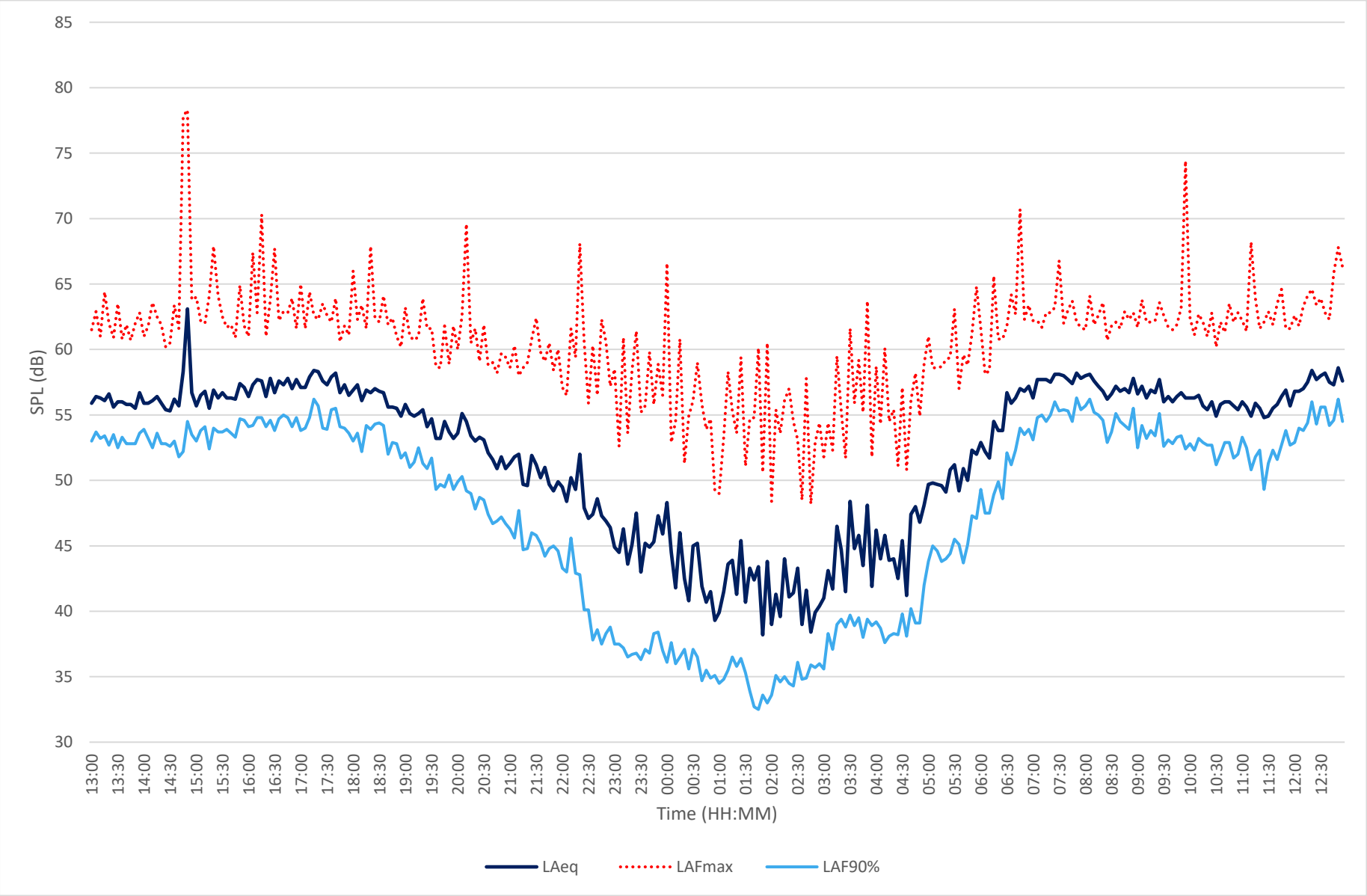


Table B.1 – Measurements Results Including L_{eq} and L_{max} Octave Band Data

Position	Height above Ground	Time	Duration	L_{Aeq}	$L_{Amax,F}$	L_{A10}	L_{eq} at Octave Band Centre Frequency, Hz (dB)							$L_{max,F}$ at Octave Band Centre Frequency, Hz (dB)						
	(m)	(hh:mm:ss)	(secs)	(dB)	(dB)	(dB)	63	125	250	500	1000	2000	4000	63	125	250	500	1000	2000	4000
1	1.5	12:18:47	600	61.6	66.8	63.8	71.0	61.5	52.4	56.0	60.3	50.2	38.2	90.0	76.0	64.4	65.8	67.2	58.2	51.9
	1.5	13:49:05	600	60.7	69.1	63.0	70.8	62.7	51.8	55.1	59.3	49.3	38.4	86.8	76.6	66.6	65.9	65.8	67.4	55.2
	5.0	13:49:06	600	61.7	71.5	69	68.1	57.6	58.1	57.7	59.4	51.9	39.7	83.2	70.2	68.9	69.7	65.6	69.7	55.4
	1.5	14:09:03	600	61.0	69.8	62.8	70.0	62.6	53.0	55.2	59.6	49.1	38.2	84.3	76.1	67.4	66.1	68.2	63.1	54.3
2	1.5	12:34:35	600	60.0	70.6	61.9	69.7	62.8	54.3	50.2	57.7	52.5	40.4	81.0	74.5	65.4	63.0	68.2	68.8	57.1
	1.5	13:36:25	600	55.7	63.7	57.4	67.7	63.1	54.5	46.6	52.5	47.1	38.9	79.1	78.5	74.6	59.8	61.5	57.3	59.9
	5.0	13:36:26	600	61.1	68.6	62.6	66.3	60.6	56.8	56.9	58.6	52.5	39.7	77.9	75.9	76.0	69.8	66.7	60.4	53.5
	1.5	14:50:43	600	56.8	66.2	58.2	69.0	63.0	54.1	47.7	53.7	49.2	38.4	84.6	73.7	66.4	61.7	62.6	62.6	58.1
3	1.5	12:49:35	600	61.1	66.7	63.2	69.6	64.5	57.8	52.9	58.7	53.4	41.2	85.1	79.9	71.7	63.3	65.6	61.5	55.6
	1.5	13:18:20	600	60.9	69.3	63.0	68.7	64.2	57.6	52.8	58.4	53.2	41.2	80.3	75.8	71.7	63.9	64.7	67.2	58.9
	5.0	13:18:18	600	66.1	72.2	68.4	67.4	62.1	59.1	62.9	63.7	57.2	44.4	79.4	73.8	72.3	75.1	70.0	68.1	57.8
	1.5	14:35:07	600	62.0	67.5	64.3	69.3	64.4	58.1	53.1	59.6	54.6	41.9	80.4	75.1	72.0	62.9	66.5	61.6	61.9
4	1.5	14:09:08	600	59.7	70.7	61.5	67.4	59.4	50.1	56.0	58.0	47.4	35.3	82.5	71.5	65.6	67.3	65.3	66.8	57.0
5	1.5	14:25:07	600	57.1	64.2	59.3	66.4	58.6	50.0	52.6	55.4	45.0	35.6	79.1	69.3	64.4	63.6	62.9	60.8	55.3
	5.0	14:25:08	600	59.5	66.5	61.7	63.7	55.2	55.5	56.4	57.4	48.0	35.5	75.9	66.1	67.9	68.6	65.2	58.4	50.9

Figure B.6 – Typical L_{Aeq} and $L_{Amax,F}$ Road Traffic Spectra at Position 1

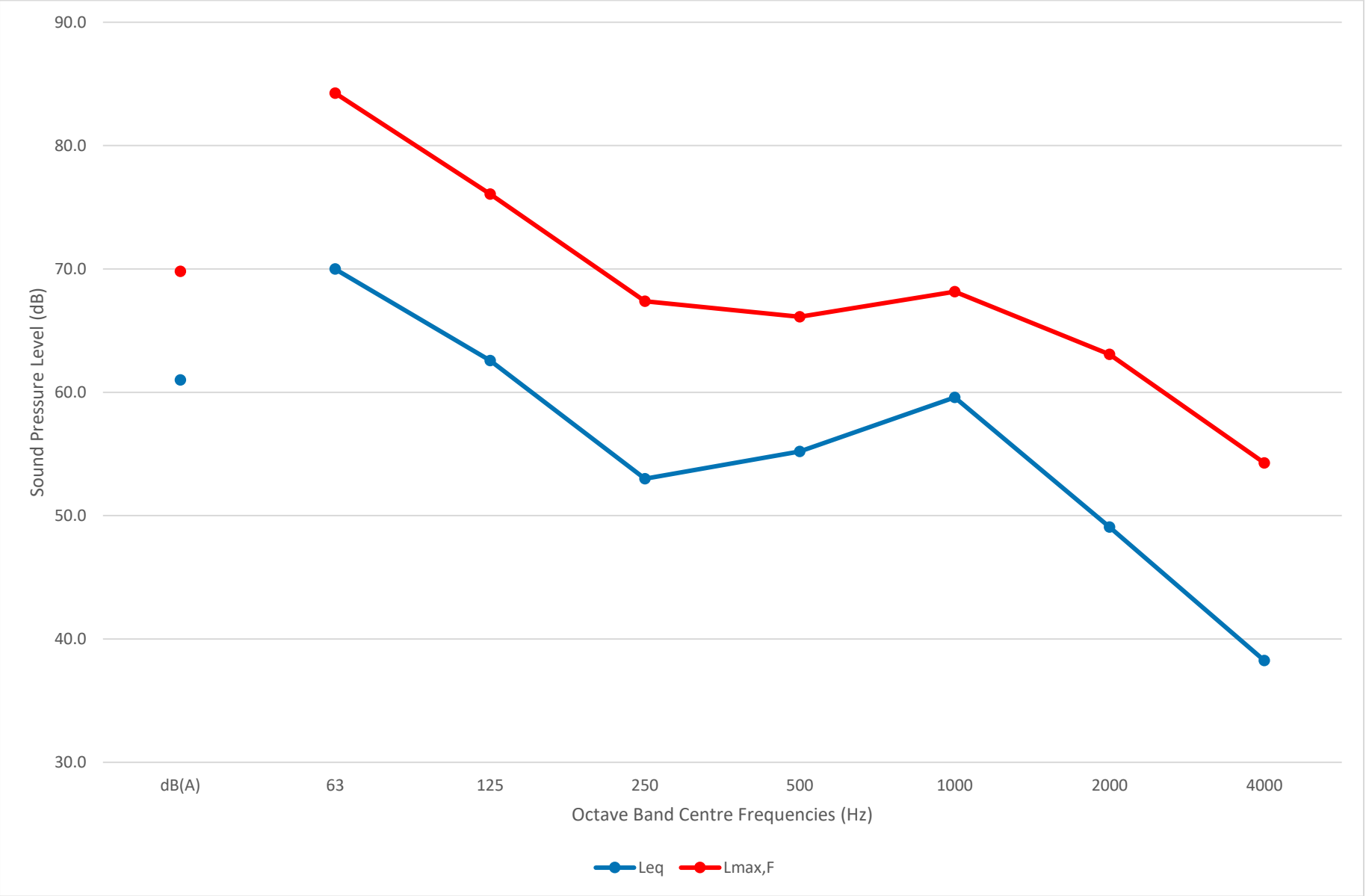
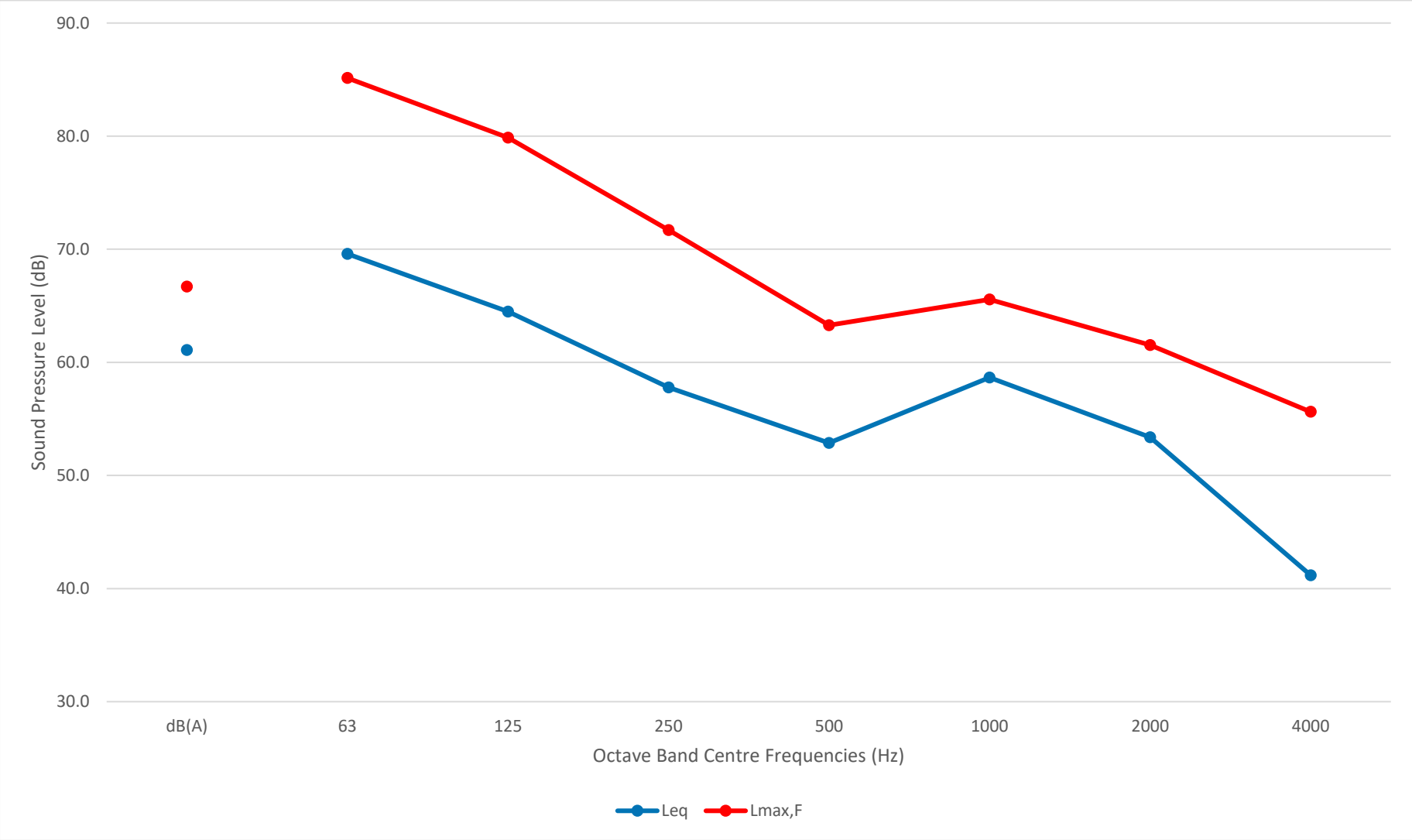


Figure B.7 – Typical L_{Aeq} and $L_{Amax,\,F}$ Road Traffic Spectra at Position 3



APPENDIX C - DRAWING LISTS

The following drawings have been used in our assessment;

Table C.1 – Drawings List

Name	Date modified	Type	Size
2915-T St Ederyns Village Cardiff 2D	21/05/2020 10:14	DWG TrueView Dr...	1,358 KB
2915-T St Ederyns Village Cardiff 3D	21/05/2020 10:14	DWG TrueView Dr...	1,571 KB
19_02650_MJR-19.5160ENSREV581946050...	21/05/2020 10:30	Adobe Acrobat D...	2,404 KB
Tobin Masterplan 1_500 (003)	21/05/2020 10:30	Adobe Acrobat D...	7,544 KB
Tobin 19123(05) 100 - Location Plan	21/05/2020 10:30	Adobe Acrobat D...	209 KB
Tobin SK002 Blockplan 1_500	21/05/2020 10:30	Adobe Acrobat D...	9,502 KB
2915-T St Ederyns Village Cardiff 2D	21/05/2020 10:34	Adobe Acrobat D...	22,633 KB
2915-T St Ederyns Village Cardiff 3D	21/05/2020 10:34	Adobe Acrobat D...	22,294 KB
plot	21/05/2020 11:37	Text Document	1 KB
TOBIN LAND TOPO	21/05/2020 11:37	Adobe Acrobat D...	313 KB