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HAFOD

ABERTHIN ROAD, COWBRIDGE

NOISE ASSESSMENT REPORT

MARCH 2022

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NOISE ASSESSMENT REPORT

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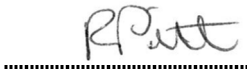

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APPENDICES

DRAWINGS

1 INTRODUCTION

1.1.1 Wardell Armstrong LLP was commissioned by Hafod to undertake a noise assessment to support a full planning application for a proposed residential development. The application is for 34 dwellings off Aberthin Road at the former Cowbridge High School, Cardiff. The proposed layout for the site is shown on drawing no. 3703-PA-210 – Proposed Site Layout Plan, prepared by Pentan Architects.

1.1.2 The proposed development site is located in eastern Cowbridge, at grid reference ST000745, and currently comprises disused buildings and areas of hard standing. To the north of the site lies an area of hard standing, beyond which, approximately 30m from the site boundary, lies the A48. To the east of the site lies Aberthin Road. To the south and east of the site lie existing residential properties.

1.1.3 The report comprises an assessment of the potential noise impacts upon the proposed residential dwellings including noise from the A48 and Aberthin Road. The report assesses the results of a noise survey carried out in accordance with current guidance and includes recommendations for noise mitigation as appropriate.

2 ASSESSMENT METHODOLODGY

2.1 Consultation and Scope of Works

2.1.1 Wardell Armstrong LLP was commissioned to undertake a noise assessment in support of a full planning application for a proposed residential development at land off Aberthin Road at the former Cowbridge High School, Cowbridge.

2.1.2 Prior to undertaking this assessment, the proposed scope of the noise assessment works required to support the planning application was submitted to the Environmental Health Department at the Vale of Glamorgan Council for comment. No response has been received to date.

2.2 Noise Surveys

2.2.1 On 6th and 7th September 2018 an unattended noise survey was undertaken at 2 locations considered to be representative of the proposed residential receptor most exposed to the dominant, existing noise source. This data has been used to inform the noise assessment report. The noise survey is discussed in Section 3 of this report.

2.3 Assessment Methodology Adopted

2.3.1 Potential noise issues that are addressed in this assessment include noise from road traffic on the A48, Aberthin Road and the surrounding road network.

2.3.2 This noise assessment considers the suitability of the site for the proposed uses, and takes into account current guidance including:

- Planning Policy Wales, December 2018;
- Planning guidance (Wales), Technical Advice Note (TAN) (Wales) 11, "Noise" October 1997;
- British Standard 8233: 2014 Guidance on sound insulation and noise reduction for buildings (BS8233).

Planning Policy Wales

2.3.3 Planning Policy Wales (PPW) is the current planning policy guidance within Wales. The planning guidance defines the primary objective of the document in paragraph 1.2 as follows:

> *'…to ensure that the planning system contributes towards the delivery of sustainable development and improves the social, economic, environmental and cultural well-being of Wales…'*

2.3.4 In particular reference to noise Paragraph 6.7.3 of the PPW states:

> *'Problematic forms of sound are generally experienced as noise pollution and can affect amenity and be prejudicial to health or a nuisance. Noise action plans drawn up by public bodies aim to prevent and reduce noise levels where necessary and preserve soundscape quality where it is good. Noise levels used to identify priority areas contained in noise actions plans are usually set quite high in order to focus resources on the most polluted areas and noise must meet a number of tests before it qualifies as a statutory nuisance. Lower levels of noise, however can still be annoying or disruptive and impact on amenity and as such should be protected through the planning process wherever necessary.'*

Technical Advice Note 11: Noise (TAN 11)

2.3.5 TAN 11 is used to categorise noise levels for proposed residential developments. TAN 11 presents four NECs ranging A to D. Where A is for the lowest noise levels, and D is for development sites with higher noise levels. A breakdown of the NECs, and subsequent advice is provided below in Table 1 and Table 2.

Table 1: Noise exposure categories for road traffic noise and mixed sources

Time	Noise Exposure Category			
	A	B	C	D
0700-2300	<55	55 - 63	63 - 72	>72
2300-0700	<45	45 - 57	57 - 66	>66

Footnote

(1) **Noise levels:** the noise level(s) ($L_{Aeq,T}$) used when deciding the NEC of a site should be representative of typical conditions.

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

Table 2: Advice relating to noise exposure category

NEC	Significance	Advice
A	Negligible	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	Minor	Noise should be taken into account when determining planning applications and, where appropriate, conditions imposed to ensure an adequate level of protection.

C	Moderate	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	Major	Planning permission should normally be refused.

2.3.6 TAN 11 also states that:

"This note provides advice on how the planning system can be used to minimise the adverse impact of noise without placing unreasonable restrictions on development."

Annex B

2.3.7 *"For established roads it will be sufficient normally to base assessments on the current measured noise level..."*

Guidance Noise Levels at Proposed Sensitive Receptors

2.3.8 British Standard 8233 "Guidance on sound insulation and noise reduction for buildings" 2014, suggests the following guideline noise levels and states that they are based on guidelines issued by the World Health Organisation;

2.3.9 The following guideline values are suggested by WHO:

- 35 dB $L_{Aeq(16\ hour)}$ during the day time in noise sensitive rooms
- 30 dB $L_{Aeq(8\ hour)}$ during the night time in bedrooms
- 45 dB $L_{Amax(fast)}$ during the night time in bedrooms
- 50 dB $L_{Aeq(16\ hour)}$) desirable external noise levels for amenity space such as gardens and patios
- 55 dB $L_{Aeq(16\ hour)}$ upper guideline value which would be acceptable in noisier environments.

2.3.10 In addition, for internal noise levels it 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 5 dB and reasonable internal conditions still achieved."

2.3.11 Furthermore, with regard to external noise, the Standard states;

"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 can 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 NOISE SURVEY

3.1.1 Wardell Armstrong LLP carried out a noise survey at the development site on the 6th and 7th September 2018.

3.1.2 Unattended noise measurements were taken at two monitoring locations (shown on drawing No. CA11468-001), which were considered to be representative of the proposed residential receptors most exposed to the dominant noise sources. The monitoring locations were as follows:

- Monitoring Location 1: Approximately 12m from the northern site boundary, approximately 30m from the A48;
- Monitoring Location 2: Adjacent to the eastern site boundary, approximately 5m from Aberthin Road.

3.1.3 Unattended noise monitoring was carried out over a 24hour period at monitoring location 1 and 2 on a weekday in order to capture fluctuations in road noise from the A48 and Aberthin Road.

3.1.4 The noise measurements were made using a Class 1, integrating sound level meter. The sound level meter was mounted vertically on a tripod 1.5m above the ground and more than 3.5 metres from any other reflecting surfaces.

3.1.5 Noise monitoring took place during dry and calm weather conditions. The sound level meter was calibrated to a reference level of 94dB at 1kHz both before, and on completion of, the noise survey. No drift in calibration over 0.5dB was measured during the survey.

3.1.6 For the purpose of this assessment daytime hours are taken to be 0700 to 2300 hours and night-time hours to be 2300 to 0700 hours.

3.1.7 A-weighted[1] L_{eq}[2] and maximum noise levels were measured to comply with the requirements of BS8233. The L_{90}[3], L_{10}[4] and minimum sound pressure levels were also

[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_{eqs} — 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.

measured to provide additional information. The measured noise levels are set out in full in Appendix A.

3.1.8 During the survey observations were made of the significant noise sources which contribute to the noise levels at the site. The observations identified the following:

Road Traffic Noise: Road traffic noise from the A48 and Aberthin Road was dominant throughout the site.

Other Sources: Birdsong was audible across the site area.

4 NOISE IMPACT ASSESSMENT

4.1 Existing Noise Levels

4.1.1 The measured noise levels for the monitoring locations have been divided into daytime (0700-2300 hours) and night-time (2300-0700 hours) categories. The individual levels have been arithmetically averaged to give single daytime and night-time levels for the monitoring locations.

4.1.2 The proposed residential area will be situated 15m from the A48.Therefore in order to represent the worst case noise levels at the proposed development a line source distance correction of +3dB has been added to the measured noise levels taken at monitoring location 1, which was 30m from the A48.

4.1.3 The proposed residential area will be at least 7m from the Aberthin Road, therefore in order to represent the worst-case noise levels at the proposed development a line source distance correction of -1.5dB has been added to the measured noise levels at monitoring location 2.

4.1.4 The average daytime and night-time noise levels at the monitoring locations are presented in Table 3.

Table 3: Average Daytime and Night-time Noise Levels

Time	Monitoring Location	Average Measured Noise Level (Figures in dB L_{Aeq})	NEC Category
0700-2300	1	58.1*	B
2300-0700		46.5*	B
0700-2300	2	62.3*	B
2300-0700		46.0*	B

* Includes distance correction

4.1.5 The maximum noise levels measured during the night-time period of the survey, at the monitoring location, are summarised in Table 4.

4.1.6 In order to form a representative figure for the maximum noise levels at the site during the night-time, an arithmetic average of the 10 maximum noise levels recorded throughout the night has been used for the assessment. The 10 maximum noise levels range from 62.5dB L_{Amax} to 71.9 L_{Amax} at monitoring location 1 and from 76.1 to 80.2 at monitoring location 2.

4.1.7 The proposed residential area will be up to 15m from the A48, therefore in order to

represent the worst-case noise levels at the proposed development a point source distance correction of 6dB has been added to the measured noise levels at monitoring location 1.

4.1.8 The proposed residential area will be at least 7m from the Aberthin Road, therefore in order to represent the worst-case noise levels at the proposed development a line source distance correction of -3dB has been added to the measured noise levels at monitoring location 2.

Table 4: Summary of the Maximum Night-time Noise Levels (Figures in dB L_{Amax})		
Monitoring Location	**Maximum Measured Noise Levels**	**Average of 10 Maximum Measured Noise Levels**
1	77.9*	72.5*
2	77.2*	74.9*
*Includes distance correction		

4.1.9 Based on the results obtained, a robust assessment can be made of the noise levels at the proposed development site and of the mitigation necessary to achieve the required internal and external noise levels during the daytime and night-time at the development.

4.2 Assessment of TAN 11 Noise Exposure Categories

4.2.1 The results in table 3 show that during the daytime and night time, the western part of the site falls within category B of the NEC table in TAN 11. Calculations based on the measured noise levels, and using accepted principles, show the following:

- Daytime – The entire site falls within category B; and
- Night-time – Easternmost 8.5m of the site and northernmost 18m of the site will fall within category B.

4.2.2 Advice for proposed developments within category B states that noise should be taken into account when determining planning applications and, where appropriate, conditions imposed to ensure an adequate level of protection. Therefore, mitigation measures should be considered to reduce noise at the site.

4.2.3 In addition to this, the highest level recorded is below the 82dB threshold for NEC C, therefore the maximum noise levels have no influence on the NEC.

4.3 Assessment of Daytime Road Traffic Noise Levels in Outdoor Living Areas

4.3.1 Table 3 shows that during the daytime, worst-case external noise levels affecting the development site would be 62.3dB L_{Aeq}. This is above the guideline value set by TAN 11 and BS8233, therefore some mitigation is required within gardens that have direct line of sight to Aberthin Road.

4.4 Assessment of Daytime Noise Levels in Living Rooms

4.4.1 Before internal noise levels can be calculated 3dB(A) must be added to the freefield measured levels to allow for the reflection of noise from the proposed housing façades when the buildings are in place.

4.4.2 The measured daytime noise levels, as detailed in Table 3, have been used to determine the noise levels likely at the façades of properties during the daytime period. The layout of the properties is shown on drawing no. 3703-PA-010.

4.4.3 A screening correction has been applied to those properties that would not have a direct line of sight to the roads due to their orientation.

4.4.4 The calculated noise levels at the façades of the properties, together with the level of attenuation required to achieve 35dB L_{Aeq} in the living room areas, are summarised in Table 5.

Table 5: Façade Noise Level at Proposed Properties and Level of Attenuation Required to Achieve the Internal Daytime Noise Guideline Level (Figures in Leq dB(A))

Residential Properties	Noise Level at the Façade of the Property	Level of Attenuation Needed to Achieve Noise Guidance Levels in Living Room Areas
Plot 1-4 northern and southern aspect	60.3	25.3
Plot 5-34 northern aspect	62.1	27.1
Plot 5-34 eastern aspect	65.3	30.3
Plot 5-34 southern aspect	60.3	25.3
Plot 5-34 western aspect	57.1	22.1

4.4.5 The calculated noise levels at the facades of noise sensitive rooms have been used to determine the glazing and ventilation requirements on a plot by plot basis, as detailed in section 5.3 of this report.

4.5 Assessment of Night-time Noise Levels in Bedrooms

4.5.1 The measured night-time noise levels, as detailed in Tables 3 and 4, have been used to determine the noise levels likely at the façades of properties in the vicinity of the monitoring locations, during the night-time period. To ensure a representative assessment, the noise levels at these façades are based on an average of the 10 highest maximum measured noise levels measured during the night-time survey.

4.5.2 Before internal noise levels can be calculated 3dB(A) must be added to the freefield measured levels to allow for the reflection of noise from the proposed housing facades when the buildings are in place.

4.5.3 A screening correction has been applied to those properties that would not have a direct line of sight to the roads due to their orientation.

4.5.4 The calculated noise levels at the façades of properties, together with the level of attenuation required to achieve 30dB L_{Aeq} and 45dB $L_{Amax,f}$ in the bedrooms, are summarised in Table 6.

Table 6: Façade Noise Level at Proposed Properties and Level of Attenuation Required to Achieve the Internal Night-time Noise Guideline Levels (Figures in dB(A))

Residential Properties	Noise Level at the Façade of the Property (L_{Aeq})	Maximum Noise Level at the Façade of the Property (L_{Amax})	Level of Attenuation Needed To Achieve the Noise Guidance Levels in Bedrooms
Plot 1-4 northern and southern aspect	41.8	65.1	20.1
Plot 5-34 northern aspect	49.5	75.5	30.5
Plot 5-34 eastern aspect	49.0	77.9	32.9
Plot 5-34 southern aspect	41.8	65.1	20.1
Plot 5-34 western aspect	44.5	70.5	25.5

4.5.5 The calculated noise levels at the facades of noise sensitive rooms have been used to determine the glazing and ventilation requirements on a plot by plot basis, as detailed in section 5.3 of this report.

5 NOISE ATTENUATION SCHEME

5.1 Introduction

5.1.1 Mitigation measures are required to attenuate road traffic noise from the Aberthin Road.

5.2 Outdoor Living Areas

5.2.1 Prediction calculations have been undertaken using established procedures to determine noise levels in proposed outdoor living areas with reference to the site layout drawing 3703-PA-210 prepared by Pentan Architects. The following mitigation is proposed in order to meet the required external noise guidance levels:

- 1.8m high closed board fencing along eastern boundary of garden 1.

5.2.2 The calculations show that with the mitigation measures proposed outdoor living areas across the site will meet the upper BS8233 guideline value of 55dBLAeq.

5.3 Living Room and Bedroom Areas

5.3.1 The guideline value for living room and bedroom areas during the daytime is 35dB L_{Aeq}, and the guideline values for bedrooms at night are 30dB L_{Aeq} and 45dB L_{Amax}. These reflect the advice in BS8233 2014.

5.3.2 The noise levels likely at the facades of the properties in the vicinity of the monitoring location have been determined, during the daytime and night time periods due to road traffic noise. Detailed break in calculations have then been undertaken for all noise sensitive rooms for each plot type across the site.

5.3.3 Noise guideline levels will not always be achieved in noise sensitive rooms throughout the site with windows open. All noise sensitive rooms will achieve noise guideline levels with 6/12/6 double glazing (6mm panes with 12mm gap) with windows closed. During times where windows need to be closed to achieve acceptable noise levels, an alternative means of ventilation will be required. Two Passivent TVALdB 800 Window frame vents (or similar) per window will ensure that noise guideline levels are met, whilst ventilation is also provided.

5.3.4 It is considered appropriate and in line with standard UK practice that windows should remain openable to allow for future residents to open windows for additional ventilation as and when they deem noise levels acceptable.

5.3.5 The sound reduction data, of the glazing and ventilation specified in paragraph 5.3.3,

is detailed in Table 7 and 8 below.

Table 7 - Glazing Sound Reduction Data									
	Frequency (Hz)								
Description	**31.5**	**63**	**125**	**250**	**500**	**1000**	**2000**	**4000**	**8000**
Glazing 6/12/6	8	14	20	19	29	33	39	45	45

Table 8 - Ventilation Sound Reduction Data									
	Frequency (Hz)								
Description	**31.5**	**63**	**125**	**250**	**500**	**1000**	**2000**	**4000**	**8000**
2 x Passivent TVALdB 800 Window frame vent	28.3	34.3	46.0	43.8	37.9	43.4	43.4	49.5	49.5

5.3.6 The glazing and ventilation scheme to be implemented should, as a minimum, meet the acoustic specification outlined in Tables 7 and 8 to attenuate noise to an acceptable level and allow for sufficient ventilation with windows closed.

6 CONCLUSIONS

6.1.1 The dominant noise source affecting the proposed development site is road traffic on the A48 and Aberthin Road.

6.1.2 The noise levels have been assessed using guideline values suggested by BS8233 and Tan 11. It should be noted that the internal guideline values are health-based and are therefore relatively inflexible; however adequate noise mitigation is relatively straightforward to engineer. The external guideline values are based on amenity and allow noise to be balanced against any benefits which flow from the location of the proposed scheme.

6.1.3 The following mitigation is proposed in order to meet the required external noise guidance levels:

- 1.8m high closed board fencing along eastern boundary of garden 1.

6.1.4 The mitigation measures proposed will ensure the upper BS8233 guideline value of 55dBL_{Aeq} is met in garden areas across the site.

6.1.5 Noise guideline levels will not always be achieved in noise sensitive rooms throughout the site with windows open. All noise sensitive rooms will achieve noise guideline levels with 6/12/6 double glazing (6mm panes with 12mm gap) with windows closed. During times where windows need to be closed to achieve acceptable noise levels, an alternative means of ventilation will be required. Two Passivent TVALdB 800 Window frame vents (or similar) per window will ensure that noise guideline levels are met, whilst ventilation is also provided.

6.1.6 It is considered that the mitigation measures suggested within this assessment would ensure an acceptable level of noise across the development and would support approval of the planning application.

APPENDICES

Appendix A

Noise monitoring results

Appendix A

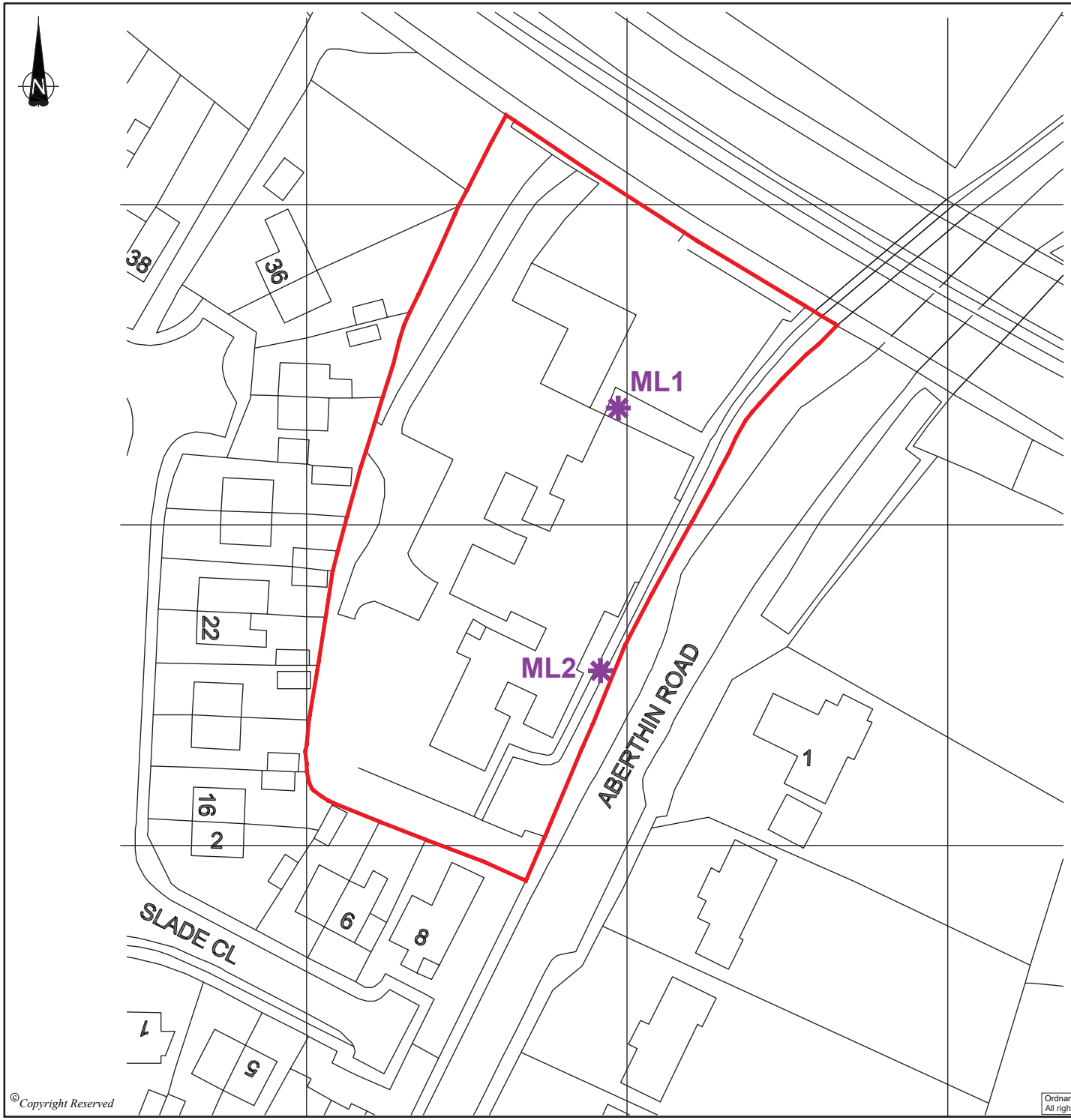
Noise Monitoring Results

Monitoring Location 1 –Adjacent to northern site boundary, approximately 30m from the A48 and 25m from Aberthin Road						
Time	**L_{Aeq} (dB)**	**$L_{A\ min}$ (dB)**	**$L_{A\ max}$ (dB)**	**L_{A90} (dB)**	**L_{A10} (dB)**	**Comments**
06/09/2018 - Daytime						
1400-1500	55.0	42.3	66.9	48.3	58.0	Road traffic noise from Aberthin Road and the A48
1500-1600	56.2	42.5	73.8	49.9	58.9	
1600-1700	56.5	43.8	69.6	49.7	59.4	
1700-1800	57.3	41.8	77.3	50.0	59.8	
1800-1900	54.8	39.8	65.2	46.7	58.1	
1900-2000	54.1	34.7	69.4	43.9	57.5	
2000-2100	51.9	34.0	63.6	41.0	56.1	
2100-2200	50.2	30.3	64.2	37.4	54.7	
2200-2300	50.8	27.4	66.1	35.7	55.2	
06-07/09/2018 - Night-time						
2300-2315	43.4	23.9	56.2	28.8	47.0	Road traffic noise from the A48 and Aberthin Road
2315-2330	48.7	24.5	63.7	31.4	52.7	
2330-2345	44.1	23.1	57.3	27.7	47.7	
2345-0000	45.7	21.2	60.4	25.9	49.6	
0000-0015	45.0	21.4	63.1	23.8	47.9	
0015-0030	46.0	21.6	64.8	24.5	48.5	
0030-0045	42.5	21.0	58.6	24.3	44.4	
0045-0100	44.3	21.4	62.3	25.7	46.5	
0100-0115	39.0	20.9	58.5	22.0	40.8	
0115-0130	41.5	19.1	60.4	21.0	41.8	
0130-0145	41.9	19.2	59.1	20.8	42.8	
0145-0200	42.2	20.4	62.1	21.7	43.1	
0200-0215	35.8	19.5	54.5	20.5	36.4	
0215-0230	30.6	19.4	53.3	20.3	28.9	
0230-0245	41.4	19.2	61.9	19.7	39.0	
0245-0300	28.4	19.2	45.4	19.9	29.7	
0300-0315	41.3	20.3	57.8	21.5	44.1	
0315-0330	36.2	19.9	53.5	20.9	39.8	
0330-0345	35.1	20.2	49.2	22.1	39.0	
0345-0400	40.0	21.2	59.2	22.8	40.4	
0400-0415	40.8	21.9	58.5	23.4	41.4	
0415-0430	43.6	21.3	59.5	23.6	45.4	
0430-0445	40.9	20.4	59.3	21.7	43.5	
0445-0500	44.8	24.0	61.2	26.8	46.8	
0500-0515	43.8	22.9	62.3	24.7	46.1	
0515-0530	46.5	26.4	62.5	30.7	49.3	
0530-0545	49.1	32.0	62.9	36.2	53.0	
0545-0600	52.1	27.2	71.9	34.7	54.2	
0600-0615	52.8	32.8	68.4	39.4	56.0	
0615-0630	53.5	38.0	66.5	44.0	57.4	
0630-0645	54.2	37.0	71.6	44.4	57.1	
0645-0700	56.1	43.8	69.7	48.0	59.7	
07/09/18 - Daytime						
0700-0800	57.7	47.1	76.1	51.0	60.5	Road traffic noise from the A48 and Aberthin Road
0800-0900	57.3	41.7	70.8	50.9	60.2	
0900-1000	55.2	40.1	70.2	47.0	58.5	
1000-1100	54.4	40.4	64.9	46.8	57.6	

1100-1200	54.7	42.6	67.6	47.4	57.8	
1200-1300	54.6	41.4	66.3	46.5	57.9	
1300-1400	55.5	42.8	70.7	48.2	58.4	
1400-1500	56.6	41.7	76.5	48.7	58.8	
1500-1600	56.6	44.5	70.4	50.2	59.6	
1600-1700	57.0	44.9	74.2	50.0	59.7	
Monitoring Location 2 – Adjacent to eastern site boundary, approximately 5m from Aberthin Road and 75m from the A48						
Time	**L_{Aeq} (dB)**	**$L_{A\ min}$ (dB)**	**$L_{A\ max}$ (dB)**	**L_{A90} (dB)**	**L_{A10} (dB)**	**Comments**
05/09/2018 - Daytime						
1800-1900	64.6	38.2	81.2	45.1	69.2	Road traffic noise from Aberthin Road and the A48
1900-2000	64.5	34.1	85.9	42.3	68.8	
2000-2100	63.4	28.8	88.6	38.2	66.3	
2100-2200	61.1	25.3	77.6	37.1	65.3	
2200-2300	58.4	21.7	76.4	28.6	60.8	
05-06/09/2018 - Night-time						
2300-2315	55.4	20.7	76.1	25.5	54.9	Road traffic noise from Aberthin Road and the A48
2315-2330	51.4	20.1	70.7	23.1	46.2	
2330-2345	50.9	21.1	75.4	23.5	44.4	
2345-0000	57.2	21.8	79.8	25.5	53.9	
0000-0015	54.8	19.9	75.1	23.0	51.5	
0015-0030	51.7	19.0	72.4	20.7	45.4	
0030-0045	43.5	18.9	67.8	20.2	39.7	
0045-0100	32.8	18.9	53.1	19.4	35.2	
0100-0115	50.0	18.3	74.3	19.2	41.5	
0115-0130	47.5	18.0	72.7	19.0	37.2	
0130-0145	32.6	18.8	48.7	20.4	37.4	
0145-0200	46.6	18.1	71.2	18.8	27.1	
0200-0215	33.6	18.3	49.7	18.7	38.2	
0215-0230	48.0	18.4	72.0	18.9	39.0	
0230-0245	32.5	18.3	51.9	18.6	36.2	
0245-0300	30.6	18.3	52.0	18.8	31.0	
0300-0315	33.1	18.1	50.7	18.3	36.5	
0315-0330	52.1	18.3	76.6	19.6	39.0	
0330-0345	51.9	18.7	74.4	20.2	43.9	
0345-0400	34.1	18.9	50.1	20.1	37.4	
0400-0415	54.6	19.2	76.7	20.9	46.7	
0415-0430	48.2	18.6	70.4	19.1	43.4	
0430-0445	37.1	18.8	54.7	19.7	40.5	
0445-0500	46.8	19.1	73.0	21.9	41.8	
0500-0515	49.5	20.5	73.2	21.9	41.5	
0515-0530	54.7	21.1	76.0	25.9	51.4	
0530-0545	58.9	21.6	79.3	32.4	58.8	
0545-0600	58.9	26.5	77.0	32.6	58.6	
0600-0615	63.6	31.2	80.2	38.6	65.9	
0615-0630	60.3	33.5	76.7	38.8	62.0	
0630-0645	62.8	40.0	77.4	43.3	67.6	
0645-0700	65.3	41.9	79.3	46.0	70.5	
06/09/18 - Daytime						
0700-0800	66.5	44.3	85.5	49.3	71.1	Road traffic noise from Aberthin Road and the A48
0800-0900	66.1	39.3	78.6	49.6	70.3	
0900-1000	64.7	35.1	83.6	45.1	69.4	
1000-1100	64.0	37.2	82.9	45.1	68.8	
1100-1200	64.0	35.7	80.1	44.8	68.8	
1200-1300	64.3	38.6	80.5	46.3	69.0	

DRAWINGS


Revisions
A Minor amendments to apartment block and houses. Scale bar added 14/12/2018
B Layout amended - houses rotated, apartment block split, number reduced. 15/06/2019
C Car parking number reduced (in line with apartment number reduction). Amenity space enlarged and gardens around apartments updated. Bike store location changed. 16/082019
Flyover (from OS plan)
Edge of flyover at soffit level (from ALT survey)
ABERTHIN ROAD
PLOTS 20 - 34
PLOTS 5 -19
Bin Store
Cycle Store 16 spaces
Bat Roost
Pink dashed line indicates existing trees to be removed
Blue dashed line indicates tree root protection zones
Existing stone wall to be retained
Existing stone wall and piers to be retained with railings on top. New piers to be created for gate openings
28217.5
Boundary Key
TYPE 01 - 1100mm high black powder coated steel railings
TYPE 02 - 1800mm high timber close boarded fencing
TYPE 03 - Proposed retaining wall in strict accordance with Structural Engineer's specification
TYPE 04 - 1800mm high black powder coated steel railings
TYPE 05 - 1200mm high flush fitting black powder coated steel railings fixed atop low 600mm high wall
TYPE 06 - 1100mm high black powder coated steel railings above existing stone boundary wall and between existing / new stone piers
TYPE 07 - 450mm high facing brick wall
Landscape Key
A Grass / turfed areas
B Permeable concrete block paviours
C Fine grade tarmac
450 x 450mm pre-cast concrete paving slabs
Existing trees to be retained. Dashed line indicates root protection zone
Existing trees to be removed
New tree positions in accordance with Landscape Architect's design & specification
New low level vegetation in accordance with Landscape Architect's design & specification
2.6m x 4.8m parking space
General Key
00 Plot number
Timber garden shed (suitable for bike storage)
3-arm rotary clothes line
Site Boundary
NOTES
Site plan developed using detailed survey prepared by ALT Surveys ref: "156079A / 156074A" dated: 5th November 2018.
Plans are subject to imposed planning conditions and thorough drainage investigations. Position of all existing in use and redundant drainage runs to be confirmed following further investigation.
Position of any existing underground services to be confirmed following further investigation.
Refer to engineer's proposals for details of upgrading works to existing highways, proposed highways within new development and for proposed site levels and drainage details.
Refer to landscape architect's proposal for details of soft landscaping.
Ownership of all boundaries to be confirmed by client.
SCHEDULE OF ACCOMMODATION
4no. wheelchair accessible apartments
4no. 2B3P apartments
2no. 2B4P apartments
20no. 1B2P apartments
Total = 30 apartments
4no. houses (1 x 4B6P, 1 x 2B4P and 2 x 3B5P)
Total = 34 units
pentan architects
22 Cathedral Road
Cardiff CF11 9LJ
t: 029 2030 9010
info@pentan.co.uk
Project
Aberthin Road, Cowbridge
Client
Hafod Housing
Drawing Title
Proposed Site Layout
Date
Nov '18
Scale
1 : 200 @ A1
Drawing No.
3703 / PA / 010
Rev.
C
NOTES Do not scale. All dimensions are in millimetres unless stated otherwise



DO NOT SCALE FROM THIS DRAWING

REFERENCE

Site boundary _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

Noise monitoring location _ _ _ _ _ _ _ _ ML2

REVISION	DETAILS	DATE	DRN	CHK'D	APP'D

CLIENT

HAFOD

PROJECT

ABERTHIN ROAD, COWBRIDGE

DRAWING TITLE

NOISE MONITORING LOCATIONS PLAN

DRG No.		REV
CA11468-001		
DRG SIZE	SCALE	DATE
A3	1:1250	08/11/18
DRAWN BY	CHECKED BY	APPROVED BY
RJH	RP	AK

wardell armstrong

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N:\CA\CA11468 - ABERTHIN ROAD COWBRIDGE\03 - DESIGN\AUTOCAD\CA11468-001 NOISE MONITORING LOCATIONS PLAN.DWG