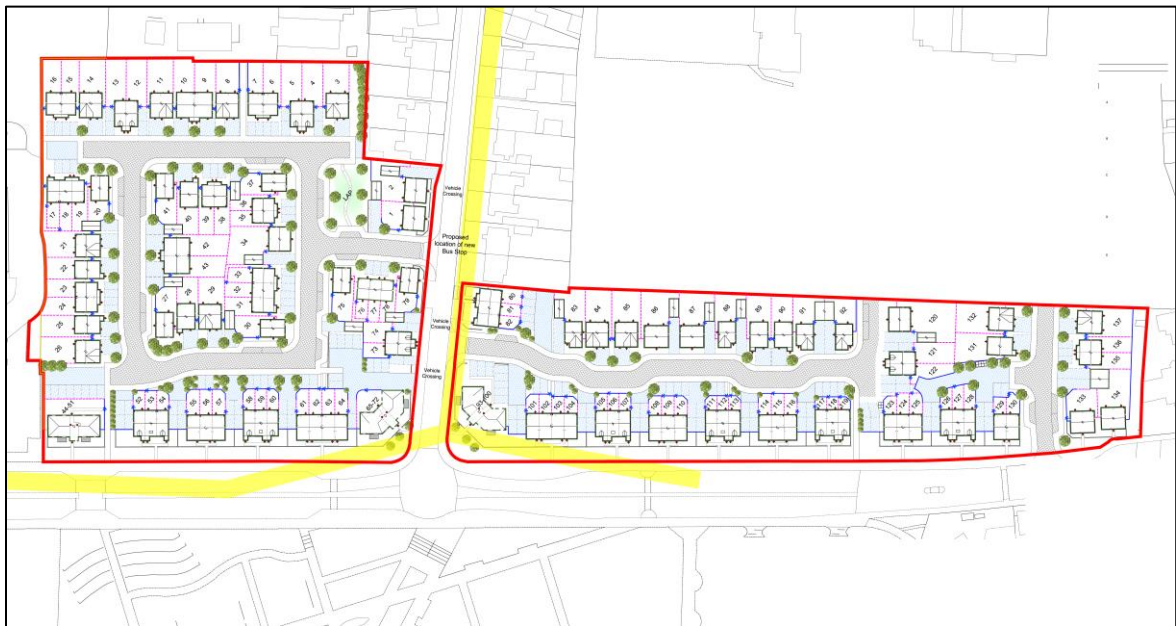


Aberavon Waterfront, The Princess Margaret Way, Port Talbot, SA12 6QW

Noise Assessment

784-A116745



Persimmon Homes Limited

September 2021

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1.0 INTRODUCTION

1.1 PURPOSE OF THIS REPORT

This report presents the findings of a noise assessment for a residential development on land at Aberavon Waterfront, Port Talbot to discharge a pre-occupation condition of an approved planning application. Condition 9 of planning permission reference P/2021/0226 states:

9. *“No residential property shall be occupied until such time as a scheme demonstrating noise mitigation measures (as set out within the noise constraints assessment by WYG* dated March 2020) for all properties in proximity to The Princess Margaret Way, Channel view and the sports field has been submitted to and approved in writing by the Local Planning Authority. Thereafter, all noise mitigation measures shall be implemented in full accordance with the approved scheme prior to the occupation of any affected residential property identified within the scheme, with all such measures thereafter retained in accordance with the approved scheme.*

Reason: To ensure that the amenities of residents are protected, and to ensure compliance with Policies SP16, EN8 and BE1 of the Neath Port Talbot Local Development Plan.”

*Former Trading name of Tetra Tech

A description of the existing noise environment in and around the site is provided. Noise surveys have been undertaken and the results used to verify predictions of the short-term and long-term effects of noise. The noise levels from the proposed development have been predicted at local representative receptors using CADNA noise modelling software which incorporates ISO 9613 and CRTN methodologies and calculations.

A list of acoustic terminology and abbreviations used in this report is provided in Appendix A.

1.2 ACOUSTIC CONSULTANTS QUALIFICATIONS AND PROFESSIONAL MEMBERSHIP

The lead project Acoustic Consultant is David Fink. The report has been checked by Ashley Shepherd and verified by Nigel Mann. Relevant qualifications, membership and experience are summarised below.

Table 1.1 Consultants Qualifications and Professional Membership

Name	Role	Education	Institute of Acoustics Post Graduate Diploma in Acoustic and Noise Control (Pass Date)	Experience in Undertaking Noise Assessments (Start date of working in noise & acoustics)	Attained Associate Membership of the Institute of Acoustics (date)	Attained Membership of the Institute of Acoustics (date)
David Fink	Environmental Technician	BEng 2016	-	March 2017	June 2017	-
Ashley Shepherd	Principal Consultant	BSc 2013	-	Feb 2014	Feb 2014	Nov 2017
Nigel Mann	Director	BSc 1997 MSc 1999	Nov 2001	Nov 1998	Nov 2001	Jul 2005

2.0 ASSESSMENT CRITERIA

2.1 INTERNAL NOISE ASSESSMENT CRITERIA

In accordance with the assessment outlined in the Noise Constraints Assessment referenced in Condition 9, the criteria in BS 8233:2014 '*Guidance on sound insulation and noise reduction for buildings – code of practice*' have been used as to determine the appropriate level of noise control, to ensure that noise levels within existing and proposed properties meet the following noise criteria:

Living rooms $L_{Aeq, 16 \text{ Hour}} = 35 \text{ dB}$

Bedrooms $L_{Aeq, 8 \text{ Hour}} = 30 \text{ dB},$ $L_{Amax, \text{ Night-time}} = 45 \text{ dB}$

3.0 ASSESSMENT METHODOLOGY

3.1 NOISE MODELLING METHODOLOGY

Three-dimensional noise modelling has been undertaken based on the monitoring data to predict L_{Aeq} and L_{AMax} noise levels from both horizontally and vertically. CADNA noise modelling software has been used as shown in Figure 3.1. The figure shows the proposed development and the surrounding road network. This model is based on ISO 9613 noise propagation methodology. The modelling software calculates noise levels based on the emission parameters and spatial settings that are entered. Input data and model settings as given in the table below have been used.

Table 3.1 Modelling Parameters Sources and Assumptions

Parameter	Source	Details
Horizontal distances – around site	Ordnance Survey	Ordnance Survey
Ground levels	Ordnance Survey	Next Map Britain 10m Contours
Building heights – around site	Tetra Tech Observations	4m height for single storey and 8 m height for two storey residential properties. Other height properties reviewed using Google Street View and amended as required
Barrier heights – Around Site	Tetra Tech Observations	All existing barriers modelled following Tetra Tech site observations with the exception of hedges and trees which are assumed to offer no noise protection.
Barrier heights – Site Boundary	Persimmon	Assessments made inclusive of intrinsic 1.8m brick wall/close boarded fence along northern boundaries of site parcels
Receptor positions	Tetra Tech	1 m from façade, height of 1.5 m for ground floor, 4 m for first floor properties. 1.5 m height for monitoring locations for verification.
Plans	Persimmon	Afan Lido, Aberavon Planning Layout Ref: PL01-H

It is acknowledged that a number of these assumptions will affect the overall noise levels presented in this report. However, it should be noted that certain assumptions made, as identified above, are worst-case.

Figure 3.1 CADNA Noise Model – 3D Site Overview



3.2 MODEL VERIFICATION

The model was verified by modelling the monitoring locations for the ‘existing’ weekday scenario including contributions from road traffic and adjacent sports fields. Daytime and night-time L_{Aeq} , and night-time L_{Amax} scenarios have been verified. The comparison between the monitoring and modelling results are shown in the tables below.

Table 3.2 Modelled vs. Monitored Results L_{Aeq} ; daytime 07:00 – 23:00

Location	Monitored L_{Aeq}	Modelled L_{Aeq}	Difference between Monitored and Modelled Results
LT1	57.9	57.9	0.0
LT3	59.0	59.0	0.0

All values are sound pressure levels in dB re: 2×10^{-5} Pa

Table 3.3 Modelled vs. Monitored Results L_{Aeq} ; night-time 23:00 – 07:00

Location	Monitored L_{Aeq}	Modelled L_{Aeq}	Difference between Monitored and Modelled Results
LT1	56.1	56.1	0.0
LT2	55.0	55.0	0.0

All values are sound pressure levels in dB re: 2×10^{-5} Pa

Table 3.4 Modelled vs. Monitored Results L_{Amax} ; night-time 23:00 – 07:00

Location	Monitored L_{Aeq}	Modelled L_{Aeq}	Difference between Monitored and Modelled Results
LT1	69.7	69.6	-0.1`
LT2	70.8	70.8	0.0

All values are sound pressure levels in dB re: 2×10^{-5} Pa

The verification points show a divergence between monitored and modelled results of no more than +/- 3 dB with the exception of ST1 and ST6 during the night-time L_{Aeq} and night-time L_{Amax} scenarios as well as ST5 during the night-time L_{Amax} where the model is predicting higher values than were measured during the short-term measurements, this is considered to be attributable to the low frequency of passing road traffic during the 15-minute period; the greatest weight and confidence has been given to long-term monitoring locations due to the greater exposure time, which show minimal divergence across daytime L_{Aeq} , night-time L_{Aeq} and night-time L_{Amax} scenarios. Therefore the models are considered to be suitably verified.

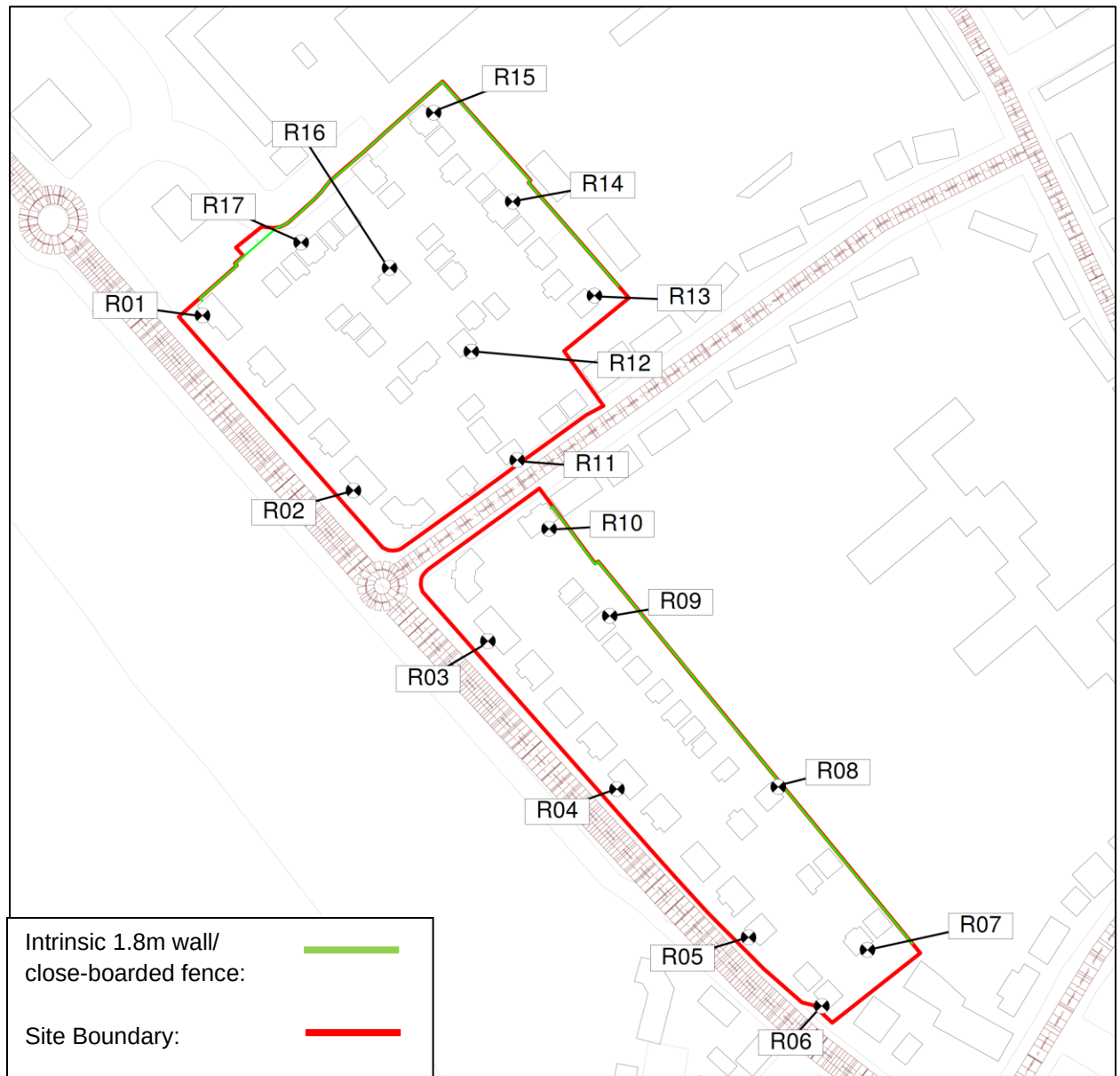
Afan Lido Football Club - Sports Pitch Noise Data

Due to adverse weather conditions occurring during the survey, specific noise data during matches or training at the adjacent football club is not available. Therefore, source noise data associated with sporting activities at the adjacent football club, have been verified as an area source to a noise level of 58 dB $L_{Aeq,1hour}$ at 10m from the halfway line which is based on the reference 'typical' noise level from a sports pitch stated within the SE guidance document associated with measurements commissioned by SE. The height of the area sources has been set to 1.5m. To present a worst-case scenario, activities on both pitches have been assessed to be occurring at the same time.

3.3 SENSITIVE RECEPTOR LOCATIONS

Noise levels from existing noise sources surrounding the site have been assessed at proposed properties across the site. The locations of the proposed receptors are shown in Figure 3.2 below.

Figure 3.2 Existing Sensitive Receptor Locations



Not to scale

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4.0 BASELINE NOISE SURVEY

4.1 NOISE SURVEY METHODOLOGY

A monitoring survey was undertaken to characterise baseline ambient noise levels currently experienced on the site and to establish the relative local background and traffic noise levels. Equipment used during the survey included:

<i>Rion NL-32</i>	<i>Environmental Noise Analyser (WYG12)</i>	<i>s/n</i>	<i>213442</i>
<i>Rion NL-52</i>	<i>Environmental Noise Analyser (WYG23)</i>	<i>s/n</i>	<i>732146</i>
<i>Rion NL-52</i>	<i>Environmental Noise Analyser (WYG26)</i>	<i>s/n</i>	<i>264488</i>
<i>Rion NL-52</i>	<i>Environmental Noise Analyser (WYG27)</i>	<i>s/n</i>	<i>264490</i>
<i>Rion NC-75</i>	<i>Sound Calibrator</i>	<i>s/n</i>	<i>35270131</i>

The measurement equipment was checked against the appropriate calibrator at the beginning and end of the measurements, in accordance with recommended practice, a drift of 0.2 dB was observed. The accuracy of the calibrators can be traced to National Physical Laboratory Standards, calibration certificates for which are available on request.

A baseline monitoring survey was undertaken at 9 locations (as specified in the following table and shown in SK01 of Appendix B) from Thursday 20th February 2020 to Tuesday 25th February 2020. Attended short term measurements were undertaken at 6 during day, evening and night-time periods with two additional locations being measured unattended over a 89 hour period. The raw data collected from the long-term monitoring is available upon request.

Measurements were taken in general accordance with BS 7445-1:2003 *The Description and Measurement of Environmental Noise: Guide to quantities and procedures*. Weather conditions during the survey period were observed as being dry and windy with scattered showers. Anemometer readings confirmed that wind speeds were less than 5 ms⁻¹ at all times during the survey, with a predominant South-Westerly wind direction, during the survey.

Table 0.1 Noise Monitoring Locations

Ref	Description
LT1	North-East tip of the site bordering the Princess Margaret way
LT2	Centre of the North-West perimeter fence of the site, bordering Afan Lido FC
LT3	Centre South-West perimeter fence bordering Channel View
ST1	Outside Burger King alongside The Princess Margaret way
ST2	Down the road leading to Port Talbot Bowls and Afan Lido FC
ST3	Channel View outside the Sports bar
ST4	Along Princess Margaret Way adjacent the Seafront behind the grounds of Tywyn Primary School
ST5	In front of houses on Victoria Road
ST6	Junction of Sunnybank Road and Channel View

4.2 NOISE SURVEY RESULTS

The dominant noise source in the area is road traffic noise with additional contributions from the sea and adverse weather conditions. Additionally, it is understood that due to roadworks, Princess Margaret Way was closed from Dalton Road to Cinnamon Kitchen roundabout to the north west of the site. Vehicular traffic passed the site during the survey including the re-routing of vehicles to the retail park, however, traffic conditions during the survey may not have been typical.

Over a large period of the unattended noise survey, adverse weather conditions (high winds and heavy rain) were present. Noise data which has been significantly influenced by the adverse weather conditions has been omitted from the dataset presented in Table 4.3.

Ambient and background noise levels are usually described using the L_{Aeq} index (a form of energy average) and the L_{A90} index (i.e. the level exceeded for 90% of the measurement period) respectively. Road traffic noise is generally described using the L_{A10} index (i.e. the level exceeded for 10% of the measurement period). For the long-term (LT) locations, the presented $L_{Aeq,T}$ and $L_{A10,T}$ are average noise levels whilst the L_{A90} is the modal noise level of each 5 minute measurement over the stated survey period.

Table 0.2 Meteorological Conditions during the Survey

Survey Location	Date & Time	Temperature (°C)	Wind Speed (m/s)	Wind Direction	Cloud Cover (Oktas)	Dominant Noise Source
Day ST1	25/02/2020 10:25:14	6	1-2	W	6	Traffic on Princess Margaret Way, Waves from the Sea front, Burger King employees emptying bins
Day ST2	25/02/2020 10:07:18	6	0-2	W	4	Traffic on Princess Margaret Way, Waves from the Sea front, customers in Bowls club car park
Day ST3	25/02/2020 11:31:34	7	1-2	W	6	Traffic from Channel view and Princess Margaret way, footfall from pedestrians
Day ST4	25/02/2020 10:44:39	7	2-3	W	2	Traffic on Princess Margaret Way, Waves from the Sea front, footfall from dog walkers
Day ST5	25/02/2020 11:02:24	7	2-3	W	3	Traffic on Victoria road and housing estates nearby
Day ST6	25/02/2020 11:31:34	7	0-2	W	7	Traffic on crossroads between Sunnybank road and Channel view
Evening ST1	20/02/2020 21:05:23	5.0	2-6	W	2	Traffic on Princess Margaret Way, Waves from the Sea front

Survey Location	Date & Time	Temperature (°C)	Wind Speed (m/s)	Wind Direction	Cloud Cover (Oktas)	Dominant Noise Source
Evening ST2	20/02/2020 21:23:43	5.0	0-3	W	2	Traffic on Princess Margaret Way, Waves from the Sea front
Evening ST3	20/02/2020 20:45:34	5.0	0-4	W	0	Traffic from Channel view and Princess Margaret way, footfall from pedestrians
Evening ST4	20/02/2020 22:27:36	5.0	3-4	W	0	Traffic on Princess Margaret Way, Waves from the Sea front
Evening ST5	20/02/2020 22:07:19	5.0	0-3	W	0	Traffic on Victoria road and housing estates nearby
Evening ST6	20/02/2020 21:45:14	5.0	0-3	W	0	Traffic on crossroads between Sunnybank road and Channel view
Night ST1	20/02/2020 23:01:39	5.0	2-4	W	7	Wind, Traffic on Princess Margaret Way, Waves from the Sea front
Night ST2	20/02/2020 23:19:34	5.0	1-3	W	6	Wind, Traffic on Princess Margaret Way, Waves from the Sea front
Night ST3	20/02/2020 23:39:08	5.0	2-4	W	7	Wind, Traffic from Channel view and Princess Margaret way, footfall from pedestrians
Night ST4	21/02/2020 00:36:03	5.0	3-4	W	7	Wind, Traffic on Princess Margaret Way, Waves from the Sea front, footfall from dog walkers
Night ST5	21/02/2020 00:16:34	5.0	1-3	W	6	Wind, Traffic on Victoria road and housing estates nearby
Night ST6	20/02/2020 23:57:10	5.0	1-3	W	6	Wind, Traffic on crossroads between Sunnybank road and Channel view

The results of the statistical measurements and frequency measurements conducted during the survey are summarised in the following table. All values are sound pressure levels in dB (re: 2×10^{-5} Pa).

Table 0.3 Results of Baseline Noise Monitoring Survey (Average Levels)

Period	Duration (T)	Monitoring Date and Times	Location	L _{Aeq,T} (dB)	L _{Amax,T} (dB)	L _{Amin,T} (dB)	L _{A10,T} (dB)	L _{A90,T} (dB)
Weekday Daytime 07:00 - 23:00	4 Hours	24/02/2020 – 25/02/2020 22:00 – 09:45	LT1	57.9	90.1	46.2	59.2	54
Weekday Night-time 23:00 – 07:00	12 Hours	24/02/2020 – 25/02/2020 00:00 – 07:00		56.1	76.7	45.0	56.1	51
Weekend Daytime 07:00 - 23:00	9 Hours	23/02/2020 – 23/02/2020 14:10 – 23:00		54.8	85.2	42.5	56.2	51

Period	Duration (T)	Monitoring Date and Times	Location	L _{Aeq,T} (dB)	L _{Amax,T} (dB)	L _{Amin,T} (dB)	L _{A10,T} (dB)	L _{A90,T} (dB)
Weekend Night-time 23:00 – 07:00	4 hours	22/02/2020 – 24/02/2020 23:00 – 00:00		56.1	69.4	42.7	55.8	56
Weekday Daytime 07:00 – 23:00	4 Hours	24/02/2020 – 25/02/2020 22:00 – 09:40	LT2	51.2	70.3	42.7	52.5	47
Weekday Night-time 23:00 – 07:00	12 Hours	24/02/2020 – 25/02/2020 00:00 – 07:00		51.1	68.9	43.5	51.7	47
Weekend Daytime 07:00 – 23:00	9 Hours	23/02/2020 – 23/02/2020 14:10 – 23:00		47.0	72.0	38.6	47.8	42
Weekend Night-time 23:00 – 07:00	4 hours	22/02/2020 – 24/02/2020 23:00 – 00:00		53.5	80.4	42.1	53.3	53
Weekday Daytime 07:00 – 23:00	4 Hours	24/02/2020 – 25/02/2020 22:00 – 10:00		59.0	92.6	45.6	59.5	52
Weekday Night-time 23:00 – 07:00	12 Hours	24/02/2020 – 25/02/2020 00:00 – 07:00	LT3	48.4	76.5	41.5	52.9	49
Weekend Daytime 07:00 – 23:00	9 Hours	23/02/2020 – 23/02/2020 14:10 – 23:00		54.8	89.8	39.5	53.6	44
Weekend Night-time 23:00 – 07:00	4 hours	22/02/2020 – 24/02/2020 23:00 – 00:00		55.0	82.4	38.8	52.7	54
Daytime 07:00 – 19:00	15 Mins	25/02/2020 10:25:14	ST1	59.8	77.9	52.3	61.8	54.8
Daytime 07:00 – 19:00	15 Mins	25/02/2020 10:07:18	ST2	47.0	66.1	41.7	49.3	43.6
Daytime 07:00 – 19:00	15 Mins	25/02/2020 11:31:34	ST3	58.7	84.1	48.5	60.7	51.1
Daytime 07:00 – 19:00	15 Mins	25/02/2020 10:44:39	ST4	58.5	73.8	50.2	61.8	53.7
Daytime 07:00 – 19:00	15 Mins	25/02/2020 11:02:24	ST5	57.8	74.6	47.1	61.0	50.6
Daytime 07:00 – 19:00	15 Mins	25/02/2020 11:31:34	ST6	58.7	75.3	48.5	60.7	51.1
Evening 19:00 – 23:00	15 Mins	20/02/2020 21:05:23	ST1	56.6	67.0	51.8	58.4	54.3
Evening 19:00 – 23:00	15 Mins	20/02/2020 21:23:43	ST2	52.7	82.7	47.1	52.0	49.1
Evening 19:00 – 23:00	15 Mins	20/02/2020 20:45:34	ST3	56.8	77.7	47.9	53.6	49.7
Evening 19:00 – 23:00	15 Mins	20/02/2020 22:27:36	ST4	56.4	69.8	49.6	58.1	52.8
Evening 19:00 – 23:00	15 Mins	20/02/2020 22:07:19	ST5	57.4	73.4	44.8	60.7	47.3
Evening 19:00 – 23:00	15 Mins	20/02/2020 21:45:14	ST6	50.2	68.5	42.0	49.8	43.8
Night 23:00 – 07:00	15 Mins	20/02/2020 23:01:39	ST1	51.4	60.9	47.3	52.6	49.9
Night 23:00 – 07:00	15 Mins	20/02/2020 23:19:34	ST2	55.8	63.4	52.8	56.9	54.5
Night 23:00 – 07:00	15 Mins	20/02/2020 23:39:08	ST3	55.2	73.5	49.9	54.9	52.2
Night 23:00 – 07:00	15 Mins	21/02/2020 00:36:03	ST4	54.3	60.0	51.4	55.3	53.2
Night 23:00 – 07:00	15 Mins	21/02/2020 00:16:34	ST5	50.7	70.1	45.1	50.6	47.8
Night 23:00 – 07:00	15 Mins	20/02/2020 23:57:10	ST6	46.8	51.2	44.0	47.69	45.8

All values are sound pressure levels in dB re: 2x 10⁻⁵ Pa

5.0 ASSESSMENT OF EFFECTS

5.1 NOISE INTRUSION ASSESSMENT

Internal noise levels within existing dwellings have been assessed both with windows open, where a reduction from a partially open window of 10 dB has been used, and with windows closed where an assumption of glazing with specification R_w 30 dB (e.g. 4/16/4mm double glazing or equivalent) has been used. The results presented in Tables 5.1 present the predicted daytime L_{Aeq} noise intrusion levels at existing residential receptors in proximity to the site.

Table 5.1 Noise Intrusion Levels $L_{Aeq,1hr}$ (Daytime)

Location	External L_{Aeq} Noise Level at 1m from Façade	Internal L_{Aeq} with windows open	Internal L_{Aeq} with Windows Closed	Criteria (Internal L_{Aeq} dB Daytime)
R01	55.5	45.5	25.5	35
R02	56.0	46.0	26.0	35
R03	55.6	45.6	25.6	35
R04	56.1	46.1	26.1	35
R05	57.5	47.5	27.5	35
R06	57.2	47.2	27.2	35
R07	42.9	32.9	12.9	35
R08	34.8	24.8	4.8	35
R09	35.8	25.8	5.8	35
R10	35.7	25.7	5.7	35
R11	58.9	48.9	28.9	35
R12	43.0	33.0	13.0	35
R13	44.2	34.2	14.2	35
R14	42.9	32.9	12.9	35
R15	47.5	37.5	17.5	35
R16	40.8	30.8	10.8	35
R17	39.4	29.4	9.4	35

All values are sound pressure levels in dBA re: 2×10^{-5} Pa.

Table 5.2 Noise Intrusion Levels $L_{Aeq,15min}$ (Night-time)

Location	External L_{Aeq} Noise Level at 1m from Façade	Internal L_{Aeq} with windows open	Internal L_{Aeq} with Windows Closed	Criteria (Internal L_{Aeq} dB Daytime)
R01	53.7	43.7	23.7	30
R02	54.0	44.0	24.0	30
R03	51.9	41.9	21.9	30
R04	51.9	41.9	21.9	30
R05	53.1	43.1	23.1	30
R06	52.8	42.8	22.8	30
R07	38.7	28.7	8.7	30
R08	29.4	19.4	0.0	30
R09	28.5	18.5	0.0	30
R10	33.6	23.6	3.6	30
R11	54.5	44.5	24.5	30
R12	39.2	29.2	9.2	30
R13	31.4	21.4	1.4	30
R14	28.0	18.0	0.0	30
R15	25.5	15.5	0.0	30
R16	34.6	24.6	4.6	30
R17	40.0	30.0	10.0	30

All values are sound pressure levels in dBA re: 2×10^{-5} Pa.

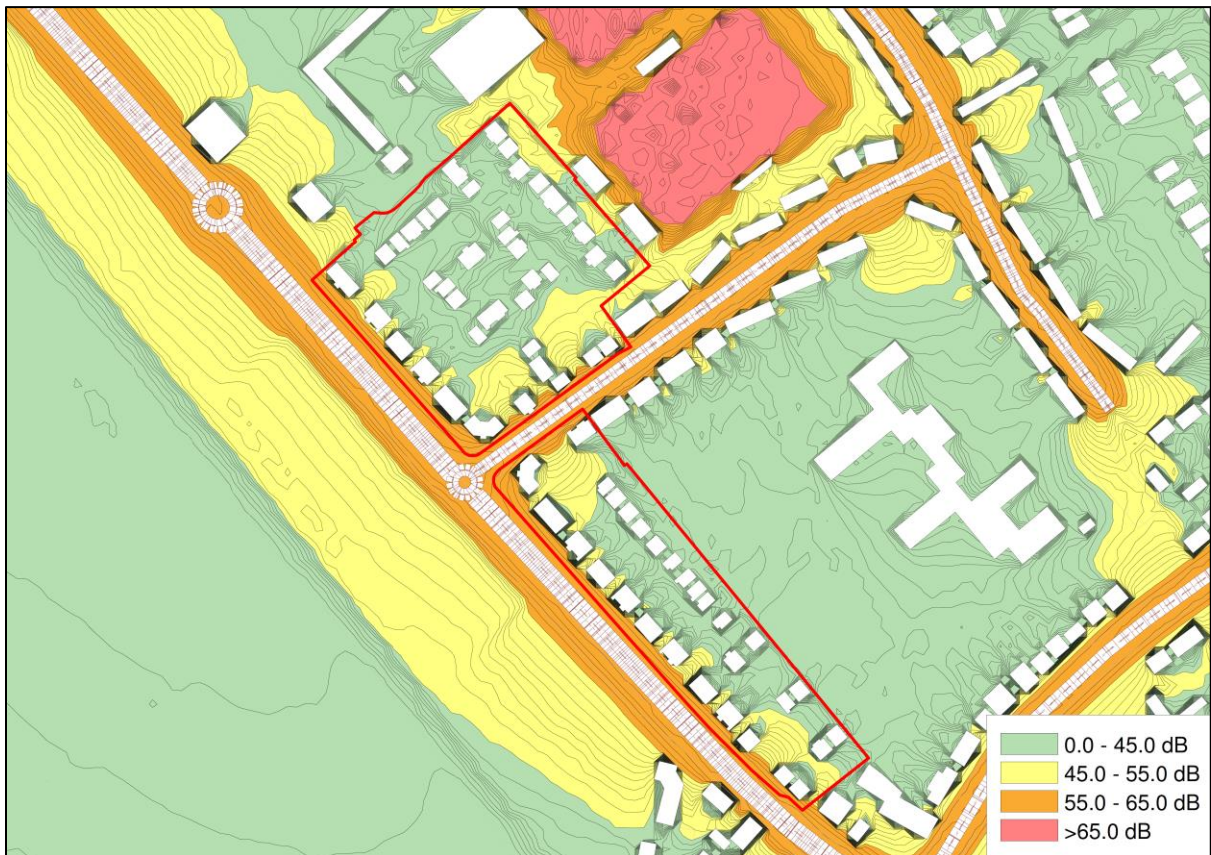
Table 5.3 Noise Intrusion Levels $L_{A\text{Max}}$ (Night-time)

Location	External L_{Aeq} Noise Level at 1m from Façade	Internal L_{Aeq} with windows open	Internal L_{Aeq} with Windows Closed	Criteria (Internal L_{Aeq} dB Daytime)
R01	67.1	57.1	37.1	45
R02	67.6	57.6	37.6	45
R03	67.9	57.9	37.9	45
R04	68.5	58.5	38.5	45
R05	69.8	59.8	39.8	45
R06	69.5	59.5	39.5	45
R07	54.9	44.9	24.9	45
R08	43.3	33.3	13.3	45
R09	43.7	33.7	13.7	45
R10	49.8	39.8	19.8	45
R11	70.3	60.3	40.3	45
R12	54.5	44.5	24.5	45
R13	46.9	36.9	16.9	45
R14	43.2	33.2	13.2	45
R15	40.0	30.0	10.0	45
R16	48.1	38.1	18.1	45
R17	53.4	43.4	23.4	45

All values are sound pressure levels in dBA re: 2×10^{-5} Pa.

The assessment presented above demonstrates that internal noise levels are predicted to exceed the BS8233/WHO noise intrusion criterion at a number of receptors with windows open during both the daytime and night-time periods. Therefore, additional mitigation is outlined within Section 6.0. For illustrative purposes, the indicative daytime noise contour plot is presented in Figure 5.1 below.

Figure 5.1 Daytime Noise Contour Plot



Not to scale

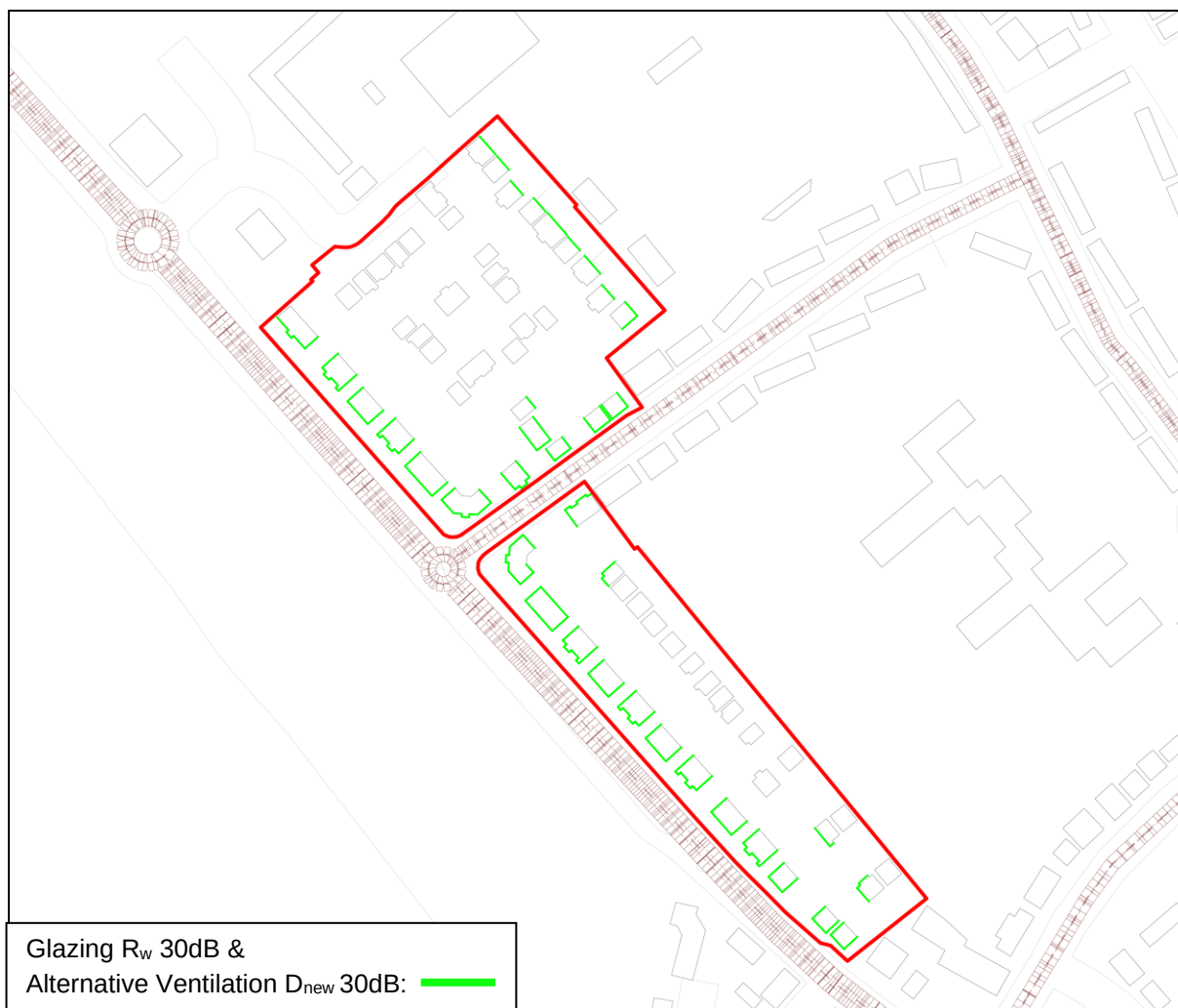
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6.0 MITIGATION

6.1 GLAZING AND VENTILATION STRATEGY

In accordance with the requirements of Condition 9 of planning permission reference P/2021/0226, the glazing and ventilation strategy provided in Figures 6.1 & 6.2 has been designed to achieve the BS 8233:2014 criteria (internal daytime L_{Aeq} of 35 dB, internal night-time L_{Aeq} of 30 dB and an internal night-time L_{Amax} of 45 dB) in habitable rooms of the proposed development.

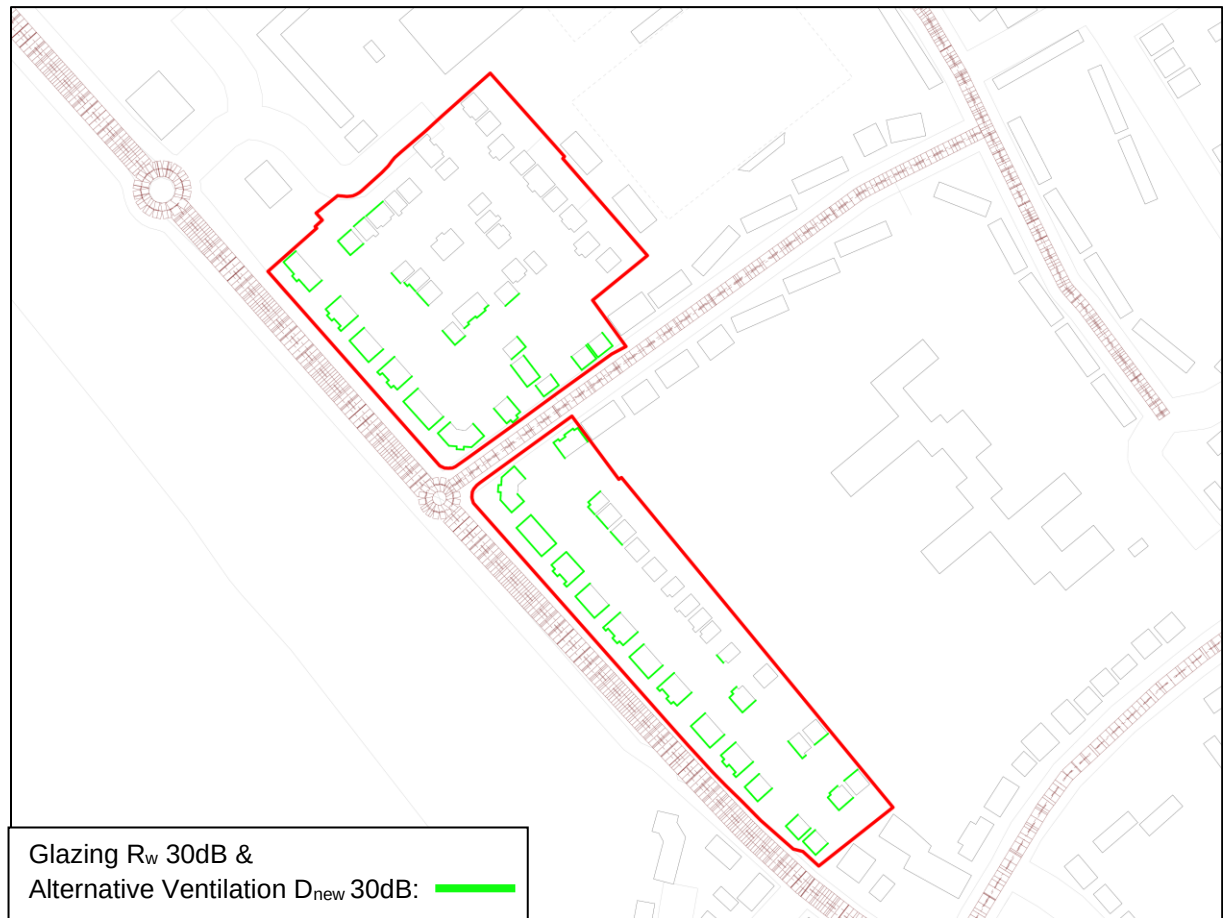
Figure 6.1 **Glazing and Ventilation Strategy – Living Rooms**



Not to scale

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Figure 6.2 Glazing and Ventilation Strategy – Bedrooms



Not to scale

OS Licence No. AL553611

Noise sensitive rooms such bedrooms and living-rooms on all façades will feature glazing with a minimum sound reduction of R_w 30dB (e.g. 4/16/4mm double glazing or equivalent). On a number of facades across the development, alternative ventilation will be provided in the form of acoustic trickle vents with a sound reduction equal to or greater than the glazing due to the proximity of the roads to the southwest and centre of the development.

7.0 CONCLUSIONS

This report presents the findings of a noise assessment undertaken a residential development known as Aberavon Waterfront, Port Talbot. Measurements of the existing ambient noise climate have been undertaken and mitigation measures proposed to demonstrate compliance with the requirements of Condition 9 of planning permission reference P/2021/0226.

Glazing with a sound reduction between R_w 30 (e.g. 4/16/4mm double glazing or equivalent) will be provided for all noise sensitive rooms across the site, with a number of dwellings located in proximity to road traffic provided with alternative ventilation in the form of acoustic trickle vents with sound reduction equal to or greater than the corresponding glazing.

Therefore, internal noise levels across the site are predicted to meet the relevant noise criteria, with the mitigation measures specified, it is considered that the requirements of Condition 9 are met.

APPENDICES

APPENDIX A – ACOUSTIC TERMINOLOGY AND ABBREVIATIONS

An explanation of the specific acoustic terminology referred to within this report is provided below.

dB Sound levels from any source can be measured in frequency bands in order to provide detailed information about the spectral content of the noise, i.e. whether it is high-pitched, low-pitched, or with no distinct tonal character. These measurements are usually undertaken in octave or third octave frequency bands. If these values are summed logarithmically, a single dB figure is obtained. This is usually not very helpful as it simply describes the total amount of acoustic energy measured and does not take any account of the ear's ability to hear certain frequencies more readily than others.

dB(A) Instead, the dBA figure is used, as this is found to relate better to the loudness of the sound heard. The dBA figure is obtained by subtracting an appropriate correction, which represents the variation in the ear's ability to hear different frequencies, from the individual octave or third octave band values, before summing them logarithmically. As a result, the single dBA value provides a good representation of how loud a sound is.

L_{Aeq} Since almost all sounds vary or fluctuate with time it is helpful, instead of having an instantaneous value to describe the noise event, to have an average of the total acoustic energy experienced over its duration. The $L_{Aeq, 07:00 - 23:00}$ for example, describes the equivalent continuous noise level over the 12-hour period between 7 am and 11 pm. During this time period the L_{pA} at any particular time is likely to have been either greater or lower than the $L_{Aeq, 07:00 - 23:00}$.

L_{Amin} The L_{Amin} is the quietest instantaneous noise level. This is usually the quietest 125 milliseconds measured during any given period of time.

L_{Amax} The L_{Amax} is the loudest instantaneous noise level. This is usually the loudest 125 milliseconds measured during any given period of time.

L_n Another method of describing, with a single value, a noise level which varies over a given time period is, instead of considering the average amount of acoustic energy, to consider the length of time for which a particular noise level is exceeded. If a level of x dBA is exceeded for say, 6 minutes within one hour, then that level can be described as being exceeded for 10% of the total measurement period. This is denoted as the $L_{A10, 1 \text{ hr}} = x \text{ dB}$.

The L_{A10} index is often used in the description of road traffic noise, whilst the L_{A90} , the noise level exceeded for 90% of the measurement period, is the usual descriptor for underlying background noise. L_{A1} and L_{Amax} are common descriptors of construction noise.

R_w The *weighted sound reduction index* determined using the above *measurement* procedure but weighted in accordance with the procedures set down in BS EN ISO 717-1. Partitioning and

building board manufacturers commonly use this index to describe the inherent sound insulation performance of their products.

An explanation of abbreviations used within this report is provided below.

CADNA – Computer Aided Noise Abatement
DMRB – Design Manual for Roads and Bridges
HGV – Heavy Goods Vehicle
UDP – Unitary Development Plan
UKAS – United Kingdom Accreditation Service

APPENDIX B – REPORT CONDITIONS

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