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Kirby Charles Associates Ltd

Revised Noise Assessment

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*Proposed Residential Development On Land At
Burton Road, West Green, Bamsley, South
Yorkshire.*

Prepared for: *Ben Bailey Homes Limited*

First Floor, ICON

First Point

Balby Carr Bank

Doncaster

DN4 5JQ

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May 2010

Report Ref: KCA110204/2105R2/May10

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Appendix A - Noise Monitoring Results

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1.0 INTRODUCTION.

- 1.1 In November 2005 Kirby Charles Associates Limited undertook a noise assessment in support of an Application by Ben Bailey Homes Limited for the residential development of land at Burton Road, West Green / Monk Bretton, Barnsley. (Report Reference: KCA110204/2105R2).
- 1.2 The Planning Approved Site Layout (Ref: Drawing No: 2131/01 Revision D) has now been revised and accordingly Kirby Charles Associates Ltd were instructed by Ben Bailey Homes Ltd to revise the original noise assessment report with regard to the proposed new site layout, i.e. Drawing No: 2131/01 Revision U.
- 1.3 The residential development site is bound by Burton Road to the north, Tumbling Lane to the east, open land / residential properties to the south and open land to the west. Currently the western section of the site has been completed, i.e. Plots 121 to 224.
- 1.4 Further, at the time of the original Noise Assessment situated opposite the eastern site boundary on Tumbling Lane was a working Scrap (non-ferrous) Yard (A. A. Ogley Limited) and a Coal Distribution Yard (Stay Warm Solid Fuels). These industries have now closed and the land has been developed for a Fire (2 Engine) Station, currently in the final phase of construction. The orientation of the Fire Station building is north / south with the main entrance being to the north leading directly onto the main Burton Road, whilst to the south is located the main car parking area and training building.
- 1.5 Also, traffic flows on Burton Road appear (subjectively) to have reduced, however for the purposes of this Revised Noise Assessment the 2004 traffic flows will be assumed.

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2.0 NOISE STANDARDS AND GUIDELINES.

2.1 The Department of the Environment Planning Policy Guidance Note PPG24:"Planning and Noise" gives guidance to local authorities on the use of their planning powers to minimise the adverse impact of noise.

2.2 In respect of transport related noise as it affects residential properties PPG24 states that:

When assessing a proposal for residential development near a source of noise, local planning authorities should determine into which of the four noise exposure categories (NECs) the proposed site falls, taking into account of both the day and night-time noise levels."

2.3 The Noise Exposure Categories are:

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 a desirable level.

B - Noise should be taken into account when determining planning applications and, where appropriate, conditions imposed to ensure an adequate level of protection against noise.

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.

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2.4 The noise levels, LAeq, corresponding to these noise exposure categories for road traffic are:

NOISE LEVELS CORRESPONDING TO THE NOISE EXPOSURE CATEGORIES FOR NEW DWELLINGS LAeq _T dB				
NOISE SOURCE	NOISE EXPOSURE CATEGORY			
	NEC A	NEC B	NEC C	NEC D
Road Traffic				
07.00 hrs - 23.00 hrs	<55	55 - 63	63 - 72	>72
23.00 hrs - 07.00 hrs	<45	45 - 57	57 - 66	>66

2.5 Further PPG24 states in Annex 2 that:

"Daytime

4. *There is no recent, major, UK based research from which to take figures for road or rail traffic. The level at the boundary of NEC A and NEC B is therefore based on guidance provided by the World Health Organisation that "general daytime outdoor noise levels of less than 55 dB(A) Leq are desirable to prevent any significant community annoyance".*

"Night-time

5. *As for daytime, there is no recent, major, UK based research from which to take figures for road or rail traffic. There has been research on the effects of aircraft noise, most recently on sleep disturbance, which looks at noise levels at which people are awoken from sleep. The night-time noise level at the boundary of NEC A and*

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NEC B is based on the WHO guideline previously referred to which states that for night-time: "based on limited data available, a level of less than 35 dB(A) is recommended to preserve the restorative process of sleep" and this is considered more relevant when seeking to achieve the best practicable conditions for rest and sleep."

2.6 PPG 24 adds that a window open for ventilation provides between 10 and 15 dB(A) attenuation. Assuming minimal attenuation the above NEC A external levels would therefore equate to internal levels of ≤ 45 dB(A) Leq_{16hr} during the daytime period and ≤ 35 dB(A) Leq_{8hr} during the night time period.

2.7 In relation to noise from industrial developments PPG24 states:

"The likelihood of complaints about noise from industrial development can be assessed, where the Standard is appropriate, using guidance in B.S.4142: 1990. Tonal or impulsive characteristics of the noise are likely to increase the scope for complaints and this is taken into account by the "rating level" defined in B.S.4142. This "rating level" should be used when stipulating the level of noise that can be permitted. The likelihood of complaints is indicated by the difference between the noise from the development (expressed in terms of the rating level) and the existing background noise level. The Standard indicates that:

"A difference of around 10 dB or higher indicates that complaints are likely. A difference of around 5 dB is of marginal significance".

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- 2.8 The British Standard, BS 4142 as amended in 1997, refers to two indices, i.e.
- a. **L90**, the level of noise exceeded for 90% of the measurement period, this is known as the background noise level, and
 - b. **Leq**, i.e. the equivalent continuous noise level, which is the steady noise level that contains the same amount of energy over a specific time period as that in a fluctuating sound.
- 2.9 The assessment procedure contained in B.S.4142 compares the noise from the proposed factory or fixed installation, using the Leq index corrected for tonal components etc., with the background noise level for the area, i.e. the L90 index.
- 2.10 If the corrected noise from the proposals is 10 dB or more above the background noise level this is a positive indication that complaints would be likely whilst if the noise from the activity is 10 dB below the L90 then this would be a positive indication that complaints would be unlikely. Differences of 5 dB are of 'Marginal Significance'.

3.0 NOISE ASSESSMENT.

3.1 Noise Assessment - Burton Road Traffic Noise.

- 3.1.1 Road traffic noise can be established either by calculation, using the Department of Transport publication "Calculation of Road Traffic Noise" (CRTN), or by measurements taken on site.
- 3.1.2 As no Burton Road traffic flow data was readily available noise measurements were recorded at the site using the shortened measurement procedure as defined in CRTN, i.e. page 31 paragraph 43, to establish the level of road traffic noise.

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- 3.1.3 The recorded L10 (1 hr) noise levels were then used to calculate the L10 (18 hour) level, using the relationship given in the "Calculation of Road Traffic Noise", i.e. page 31, paragraph 43 which in turn was then converted to an Leq(16 hour) level using the relationship given in PPG24, i.e. Annex 1, paragraph 9, to obtain the relevant noise exposure category, i.e.

$$\text{Leq}(16 \text{ hour}) = \text{average of 3 hourly L10 levels} - 1 - 2 \text{ dB(A)}$$

- 3.1.4 Noise monitoring was carried out on Wednesday 11th February 2004 with the instrument being positioned at the northern site boundary 10m distant from the nearside kerb of Burton Road (opposite Faith Street).
- 3.1.5 Subjectively the noise climate at the proposal site consisted predominantly of road traffic noise. Noise generated by the nearby Rexam Glassworks was considered to be of a sufficiently low level so as not to be significant during either the day or night time periods. Objectively, a noise level of 40 dB LAeq_T and 38 dB LA90_T was recorded at the roadside position adjacent to north western corner of the proposal site, in the absence of traffic, during the night time period. The noise did not contain any discrete tones, impulses etc.

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- 3.1.6 Further, taking into account the attenuation due to the intervening ground contours / buildings and the window specifications, the predicted noise levels at the proposed dwellings due to Rexam's activities would be significantly within the current World Health Organisation's guideline values to prevent community annoyance and sleep disturbance, i.e. an outdoor level not exceeding 55 dB LAeqT and bedroom levels not exceeding 30 dB LAeqT and 45 dB LA_{MAX}.
- 3.1.7 All noise monitoring was undertaken using a Bruel & Kjaer Type 2231 Precision Integrating/Logging Sound Level Meter which complies with the requirements of BS EN 60651:1994 (Type 1) and BS EN 60804:1994 (Type 1). The microphone to the sound level meter was equipped with a windshield at all times.
- 3.1.8 The instrument was calibrated before and after the monitoring periods using a Bruel and Kjaer Type 4230, which complies with IEC 942, no drift in calibration was observed. Further, all instrumentation had been calibrated by an authorised laboratory within the previous 2 years.
- 3.1.9 In addition all noise monitoring was carried out when the weather conditions satisfied the requirements of the British Standard BS4142: 1997, i.e. mean wind speed less than 5m/s and no significant rainfall. Wind speeds were recorded using an anemometer.
- 3.1.10 Personnel were present throughout the monitoring periods thereby ensuring that an accurate representation of the prevailing noise climate was recorded.

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3.1.11 In summary the results of the noise monitoring indicated: (Refer to Appendix A – Noise Monitoring Results)

Time Period		Burton Road
10.49 to 11.49 hrs	=	70.1 dB LA ₁₀
11.49 to 12.49 hrs	=	69.6 dB LA ₁₀
12.49 to 13.49 hrs	=	70.0 dB LA ₁₀
Average	=	69.9 dB LA₁₀

3.1.12 Using the procedures described in paragraph 3.3 above the daytime exposure level, Leq_{16hr}, at the northern (Burton Road) site boundary would therefore typically be:

Noise exposure level, Leq _{16hr}	=	L10(3 hour) - 1 - 2 dB(A)
Noise exposure level, Leq _{16hr}	=	70 - 1 - 2
Noise exposure level, LAeq _{16hr}	=	67 dB

3.1.13 The results of the noise monitoring therefore indicate that the northern boundary of the proposed residential development site is typically exposed to Burton Road traffic noise at Noise Exposure Category (NEC) C during the daytime period.

3.1.14 No night time site noise monitoring has been carried out, however, the results of a previous noise monitoring exercise carried out by Kirby Charles Associates Limited in February 2001 adjacent to the Olde Bridge Inn Public House was 60 dB LAeq between 02.00hrs and 04.00hrs but includes for increased HGV's activity at the Rexam gatehouse (proposal site therefore <60 dB LAeq_T).

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3.1.15 The results of the previous noise monitoring therefore indicate that the northern boundary of the proposed residential development site is also typically exposed to Burton Road traffic noise at Noise Exposure Category (NEC) C during the night time period.

3.1.16 Considering the proposed new site layout, Drawing No: 2131/01 Revision U, the predicted noise levels at the proposed dwellings would be:

A. PLOT 1:

Recorded noise level 10m from Burton Road, daytime	=	67 dB LAeq16hr
Night time	=	60 dB LAeqT
Distance dwelling to road	=	8m
Distance attenuation	=	+1 dB
Angle of view correction, 90 ⁰	=	-3 dB
Predicted noise level at Plot 1	=	65 / 58 dB LAeqT

B. PLOT 2:

Recorded noise level 10m from Burton Road, daytime	=	67 dB LAeq16hr
Night time	=	60 dB LAeqT
Distance dwelling to road	=	15m
Distance attenuation	=	-1 dB
Angle of view correction, 90 ⁰	=	-3 dB
Predicted noise level at Plot 2	=	63 / 56 dB LAeqT

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C. PLOTS 3 TO 6:

Recorded noise level 10m from Burton Road, daytime	=	67 dB LAeq _{16hr}
Night time	=	60 dB LAeq _T
Distance dwellings to road	=	15m
Distance attenuation	=	-1 dB
Angle of view correction, 180 ⁰	=	0 dB
Predicted noise level at Plots 3 to 6	=	66 / 59 dB LAeq _T

D. PLOTS 7 & 8:

Recorded noise level 10m from Burton Road, daytime	=	67 dB LAeq _{16hr}
Night time	=	60 dB LAeq _T
Distance dwellings to road	=	40m
Distance attenuation	=	-5 dB
Angle of view correction, 20 ⁰	=	-10 dB
Predicted noise level at Plots 7 & 8	=	52 / 45 dB LAeq _T

E. PLOTS 12 & 13:

Recorded noise level 10m from Burton Road, daytime	=	67 dB LAeq _{16hr}
Night time	=	60 dB LAeq _T
Distance dwellings to road	=	30m
Distance attenuation	=	-4 dB
Angle of view correction, 90 ⁰	=	-3 dB
Predicted noise level at Plot 12 & 13	=	60 / 53 dB LAeq _T

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F. PLOTS 67 TO 72 AND 108 TO 111:

Recorded noise level 10m from Burton Road, daytime	=	67 dB LAeq _{16hr}
Night time	=	60 dB LAeq _T
Distance dwellings to road	=	15m
Distance attenuation	=	-1 dB
Angle of view correction, 180 ⁰	=	0 dB
Predicted noise level at Plots 67 to 72, 108 to 111	=	66 / 59 dB LAeq _T

G. PLOT 73 TO 76:

Recorded noise level 10m from Burton Road, daytime	=	67 dB LAeq _{16hr}
Night time	=	60 dB LAeq _T
Distance dwellings to road	=	40m
Distance attenuation	=	-5 dB
Angle of view correction, 25 ⁰	=	-9 dB
Predicted noise level at Plots 73 to 76	=	53 / 46 dB LAeq _T

H. PLOTS 104 TO 107:

Recorded noise level 10m from Burton Road, daytime	=	67 dB LAeq _{16hr}
Night time	=	60 dB LAeq _T
Distance dwellings to road	=	40m
Distance attenuation	=	-5 dB
Angle of view correction, 20 ⁰	=	-10 dB
Predicted noise level at Plots 104 to 107	=	52 / 45 dB LAeq _T

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I. PLOTS 116 TO 118:

Recorded noise level 10m from Burton Road, daytime	=	67 dB LAeq _{16hr}
Night time	=	60 dB LAeq _T
Distance dwellings to road	=	10m
Distance attenuation	=	0 dB
Angle of view correction, 120 ⁰	=	-2 dB
Predicted noise level at Plots 116 to 118	=	65 / 58 dB LAeq _T

J. PLOT 119, 120, 225, AND 226:

Recorded noise level 10m from Burton Road, daytime	=	67 dB LAeq _{16hr}
Night time	=	60 dB LAeq _T
Distance dwellings to road	=	40m
Distance attenuation	=	-5 dB
Angle of view correction, 40 ⁰	=	-7 dB
Predicted noise level at Plots 119, 120, 225 and 226	=	55 / 48 dB LAeq _T

K. PLOT 227:

Recorded noise level 10m from Burton Road, daytime	=	67 dB LAeq _{16hr}
Night time	=	60 dB LAeq _T
Distance dwelling to road	=	28m
Distance attenuation	=	-4 dB
Angle of view correction, 60 ⁰	=	-5 dB
Predicted noise level at Plot 227	=	58 / 51 dB LAeq _T

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L. PLOT 228:

Recorded noise level 10m from Burton Road, daytime	=	67 dB LAeq _{16hr}
Night time	=	60 dB LAeq _T
Distance dwelling to road	=	15m
Distance attenuation	=	-1 dB
Angle of view correction, 180 ⁰	=	0 dB
Predicted noise level at Plot 228	=	66 / 59 dB LAeq _T

M. PLOTS 229 & 230:

Recorded noise level 10m from Burton Road, daytime	=	67 dB LAeq _{16hr}
Night time	=	60 dB LAeq _T
Distance dwellings to road	=	20m
Distance attenuation	=	-2 dB
Angle of view correction, 160 ⁰	=	-1 dB
Predicted noise level at Plots 229 & 230	=	64 / 57 dB LAeq _T

N. ALL OTHER PLOTS:

Due to the enhanced screening provided by the front-line dwellings and increased distance attenuation, all other Plots would be exposed to Burton Road traffic noise at <55 dB LAeq_T daytime and <45 dB LAeq_T night time.

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3.1.17 In summary, the predicted 'worst case' noise levels at the proposed dwellings due to Burton Road traffic would be:

Plot Number	Predicted Day / Night Time Levels dB LAeq _T
1	65 / 58
32	63 / 56
3 to 6	66 / 59
7 & 8	52 / 45
12 & 13	60 / 53
67 to 72, 108 to 111	66 / 59
73 to 76	53 / 46
104 to 107	52 / 45
116 to 118	65 / 58
119, 120, 225 & 226	55 / 48
227	58 / 51
228	66 / 59
229 & 230	64 / 57
All Other Plots	<55 / <45

3.1.18 In order to ensure that the acceptable internal noise criteria levels are not exceeded during the day and night time periods, i.e. not exceeding 45 dB LAeq_(16hr) daytime and 35 dB LAeq_(8hr) night time, it is recommended that all habitable room windows having a view of Burton Road are fitted with the following minimum glazing specifications:

Plot Numbers	Habitable Room Windows With A View Of Burton Road	
	Min. Glazing Specification	Provision Of Background Ventilation
1	6/16/6.8	Acoustic vents to living rooms, mech. vents* to bedrooms
2	6/16/6.8	Acoustic vents to living rooms, mech. vents* to bedrooms
3 to 6	6/16/6.8	Acoustic vents to living rooms, mech. vents* to bedrooms
7 to 8	4/16/4	Normal vents to living rooms and bedrooms
12 & 13	6/16/6.8	Acoustic vents to living rooms, mech. vents* to bedrooms
67 to 72	6/16/6.8	Acoustic vents to living rooms, mech. vents* to bedrooms
73 to 76	4/16/4	Normal vents to living rooms and bedrooms
104 to 107	4/16/4	Normal vents to living rooms and bedrooms
108 to 111	6/16/6.8	Acoustic vents to living rooms, mech. vents* to bedrooms
116 to 118	6/16/6.8	Acoustic vents to living rooms, mech. vents* to bedrooms
119 & 120	4/16/4	Normal vents to living rooms and bedrooms
225 & 226	4/16/4	Normal vents to living rooms and bedrooms
227	6/16/6.8	Acoustic vents to living rooms, mech. vents* to bedrooms
228	6/16/6.8	Acoustic vents to living rooms, mech. vents* to bedrooms

Plot Numbers	Habitable Room Windows With A View Of Burton Road	
	Min. Glazing Specification	Provision Of Background Ventilation
229 & 230	6/16/6.8	Acoustic vents to living rooms, mech. vents* to bedrooms
All Other Plots	4/16/4	Normal vents to living and bedrooms
* Mechanical Vents or Equivalent.		

3.1.19 The sound insulation values (R_w) of the specified glazing types area: (Reference Pilkingtons's Technical Data)

6mm glass x 16mm air-gap x 6.8mm glass = 38 dB (C -2 C_{tr} -6)

4mm glass x 16mm air-gap x 4mm glass = 32 dB (C -2, C_{tr} -6)

3.1.20 With regard to the specified acoustic trickle vents, the element-normalised sound level difference of the ventilator, $D_{n,e}$, shall be a minimum of 38 dB with the vent in the fully open position. Also with regard to the specified mechanical vents (or Equivalent), these shall comply with the requirements of the Noise Insulation Regulations 1975.

3.1.21 It has been assumed that the sound insulation value of the wall element is at least 10 dB higher than that of the glazing, i.e. sound reduction of wall is at least 50 dB, therefore the noise transfer through the wall has been ignored.

3.1.22 It should be noted however that the seals of any opening lights and the seals at the frame/wall junctions must be acoustically competent, very small air-gaps would have a profound detrimental effect on the aggregate window acoustic performance. Air-gaps of only 1 percent of the total window area would reduce the overall potential sound insulation by as much as 10 dB, i.e. the traffic noise would be heard twice as loud as it would be if fully sealed.

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3.1.23 Further, in order to ensure the acceptable noise criteria levels are not exceeded within rear garden areas adjacent to Burton Road, not exceeding 55 dB LAeq_(16hr) it is proposed to erect a 2m high acoustic screen fence to the rear garden boundaries of Plots 1, 116 and 228.

3.1.24 The predicted noise levels within the rear garden areas of Plots 1, 116 and 228 with the 2m high acoustic screening being: (Using CRTN procedures)

A. PLOT 1:

Noise level at dwelling	=	65 dB LAeq _T
Ground level at road	=	41.50m
Ground level at acoustic fence	=	42.55m
Ground level at receiver	=	42.55m
Receiver height	=	1.50m
Source height	=	0.50m
Distance receiver to acoustic fence	=	5m
Distance source to acoustic fence	=	6.5m
Path difference	=	0.32m
Attenuation	=	-12 dB
Predicted garden level	=	53 dB LAeq _{16hr}

B. PLOT 116 / 228:

Noise level at dwelling	=	66 dB LAeq _T
Ground level at road	=	47.18m

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Ground level at acoustic fence	=	47.44m
Ground level at receiver	=	45.85m
Receiver height	=	1.50m
Source height	=	0.50m
Distance receiver to acoustic fence	=	5m
Distance source to acoustic fence	=	10.5m
Path difference	=	0.56m
Attenuation	=	-13 dB
Predicted garden level	=	53 dB LAeq _{16hr}

3.1.25 The predicted noise levels within the exposed rear garden areas of Plot 1, 116 and 228 would therefore be 53 dB LAeq_{16hr}, i.e. within the acceptable criteria level for rear garden areas.

3.2 Noise Assessment – Fire Station Activities (Previously Scrap / Coal Yards)

3.2.1 As previously detailed, the Scrap and Coal Yards have now closed and the site has been developed for a Fire (2-Engine) Station, but is still currently in the final phase of construction.

3.2.2 The 2005 Noise Assessment concluded that the predominant noise source affecting the eastern boundary was Tumbling Lane traffic (Noise Exposure Category A/B during the daytime period), whilst the noise generated by the scrap / coal yard was insignificant.

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3.2.3 To mitigate the traffic noise the 2005 Noise Assessment recommended the erection of a 2m high acoustic screen fence to the eastern boundary to provide a minimum of -12 dB attenuation.

3.2.4 Notwithstanding the extant permission, in order to ensure the noise likely to be generated by the activities of the Fire Station is minimised the following mitigation measures are recommended:

- i. A 2m high acoustic screen fence to be erected to the eastern boundary.
- ii. All bedrooms of dwelling adjacent to the eastern boundary having a view of the Fire Station to be fitted with windows having a manufacturers minimum sound insulation value of 38 dB (R_w) with ventilation being provided by acoustic vents which when fully open, provide a comparable sound insulation value to that of the closed window system, e.g. 6mm glass x 16mm air-gap x 6.8mm glass with Greenwoods MA3051 acoustic ventilator OR Equivalent. (Note: Ventilators to comply with the Noise Insulation Regulations)

4.0 CONCLUSIONS.

4.1 This assessment has indicated that the proposed residential development site at the northern boundary is typically exposed to Burton Road traffic noise at Noise Exposure Category (NEC) C during the daytime and night time periods.

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- 4.2 This assessment has recommended that in order to ensure that the acceptable criteria levels are not exceeded within the proposed dwellings due to Burton Road traffic noise, i.e. not exceeding 45 dB LAeq_(16hr) daytime and 35 dB LAeq_(8hr) night time, the following minimum noise mitigation measures should be implemented:

Plot Numbers	Habitable Room Windows Having A View Of Burton Road	
	Min. Glazing Specification	Provision Of Background Ventilation
1	6/16/6.8	Acoustic vents to living rooms. mech. vents* to bedrooms
2	6/16/6.8	Acoustic vents to living rooms. mech. vents* to bedrooms
3 to 6	6/16/6.8	Acoustic vents to living rooms. mech. vents* to bedrooms
7 to 8	4/16/4	Normal vents to living rooms and bedrooms
12 & 13	6/16/6.8	Acoustic vents to living rooms. mech. vents* to bedrooms
67 to 72	6/16/6.8	Acoustic vents to living rooms. mech. vents* to bedrooms
73 to 76	4/16/4	Normal vents to living rooms and bedrooms
104 to 107	4/16/4	Normal vents to living rooms and bedrooms
108 to 111	6/16/6.8	Acoustic vents to living rooms. mech. vents* to bedrooms
116 to 118	6/16/6.8	Acoustic vents to living rooms. mech. vents* to bedrooms
119 & 120	4/16/4	Normal vents to living rooms and bedrooms
225 & 226	4/16/4	Normal vents to living rooms and bedrooms
227	6/16/6.8	Acoustic vents to living rooms. mech. vents* to bedrooms
228	6/16/6.8	Acoustic vents to living rooms. mech. vents* to bedrooms
229 & 230	6/16/6.8	Acoustic vents to living rooms. mech. vents* to bedrooms
All Other Plots	4/16/4	Normal vents to living and bedrooms
* Mechanical Vents or Equivalent.		

- 4.3 This assessment has recommended the erection of 2m high (minimum) acoustic screen fencing to the rear garden boundaries of Plots 1, 116, and 228 in order to ensure the acceptable 'rear garden area' criteria level is not exceeded due to Burton Road traffic, i.e. ≤ 55 dB LAeq_(16hour).
- 4.4 This assessment has indicated that dwellings further into the site would be exposed to Burton Road traffic noise within Noise Exposure Category A during the daytime and night time periods due to the enhanced screening provided by the front-line dwellings and increased distance attenuation.

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4.5 With regard to the new Fire Station (currently in the final phase of construction) located on Tumbling Lane and situated opposite the eastern site boundary, this assessment has recommended that in order to minimise the noise likely to be generated by their activities the following minimum noise mitigation measures should be implemented:

- i. 2m high acoustic screen fencing to be erected to the eastern boundary.
- ii. All bedrooms of dwelling adjacent to the eastern boundary having a view of the Fire Station to be fitted with windows having a manufacturers minimum sound insulation value of 38 dB (R_w) with ventilation being provided by acoustic vents which when fully open, provide a comparable sound insulation value to that of the closed window system, e.g. 6mm glass x 16mm air-gap x 6.8mm glass with Greenwoods MA3051 acoustic ventilator OR Equivalent. (Note: Ventilators to comply with the Noise Insulation Regulations).

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APPENDIX A

NOISE MONITORING RESULTS

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Ben Bailey Homes Limited

**Proposed Residential Development On Land Off Burton Road, West Green / Monk Bretton, Barnsley.
Environmental Noise Monitoring Results**

Instrumentation - B & K Type 2231 Precision Integrating SLM, B & K Type 4230 Calibrator

Instrumentation Calibration Date - 26th March 2001

Weather Conditions - 100% overcast, no wind, 12C.

Monitoring Position: 10m From Burton Road (Opposite Faith Street)

Comments: Road traffic noise dominant.

Set-Up:

Module #: 15 (BZ 7115)

Time W. : F

Mic.Corr: + 0.8 dB

Freq.W. : A

Pr. Time: 00:05:00

Rg. (dB): 30.8 - 103.8

Date	Time	MAXL	L(01)	L(10)	L(50)	L(90)	L(99)	MINL	LEQ
11/02/04	10:53:59	81.3	74.3	69.3	60.3	53.8	50.8	49.1	65.2
11/02/04	10:58:59	84.1	77.3	69.3	57.8	50.3	47.8	47.0	65.8
11/02/04	11:03:59	88.2	83.3	70.3	60.3	52.3	49.8	48.2	68.9
11/02/04	11:08:59	80.5	76.3	69.3	59.3	52.3	48.8	47.4	65.7
11/02/04	11:13:59	79.7	74.3	70.3	61.3	50.3	48.3	47.5	66.0
11/02/04	11:18:59	80.4	77.8	69.8	60.8	53.3	49.3	47.5	66.3
11/02/04	11:23:59	78.8	77.3	70.3	60.8	52.3	49.3	48.1	66.3
11/02/04	11:28:59	90.5	84.4	75.8	57.8	50.8	46.3	44.9	67.6
11/02/04	11:33:59	78.7	74.8	68.8	59.3	50.8	48.3	47.2	64.8
11/02/04	11:38:59	76.5	72.8	69.3	60.3	50.8	47.8	47.1	64.8
11/02/04	11:43:59	79.5	76.3	68.8	57.8	48.8	46.3	45.7	65.1
11/02/04	11:48:59	78.8	75.8	69.3	58.8	50.8	48.3	47.6	65.1
Mean 1hr Period				70.1		51.4			66.1
11/02/04	11:53:59	78.0	75.3	69.8	59.3	51.3	47.8	47.0	65.3
11/02/04	11:58:59	80.5	73.8	69.8	60.3	50.3	46.3	45.7	65.3
11/02/04	12:03:59	84.1	79.3	70.8	59.8	53.3	51.3	50.7	67.4
11/02/04	12:08:59	78.6	74.8	69.8	60.3	51.3	48.3	47.6	65.5
11/02/04	12:13:59	84.2	77.8	68.8	57.8	49.8	46.3	45.5	66.0
11/02/04	12:18:59	77.6	73.3	69.3	57.8	48.8	45.8	44.9	64.5
11/02/04	12:23:59	81.1	74.1	69.8	58.8	51.3	45.3	44.7	66.6
11/02/04	12:28:59	81.3	75.3	68.3	58.3	49.8	45.8	45.2	64.6
11/02/04	12:33:59	73.0	71.8	68.8	58.3	49.3	46.8	45.3	63.9
11/02/04	12:38:59	79.9	75.8	69.8	57.3	47.8	44.3	43.6	65.8
11/02/04	12:43:59	78.5	76.3	70.3	62.3	52.8	47.3	46.0	66.5
11/02/04	12:48:59	77.3	73.3	69.8	62.8	53.8	46.8	45.5	65.7
Mean 1hr Period				69.6		50.8			65.7

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Date	Time	MAXL	L(01)	L(10)	L(50)	L(90)	L(99)	MINL	LEQ
11/02/04	12:53:59	76.9	74.3	69.8	59.3	49.3	45.3	44.2	65.1
11/02/04	12:58:59	80.7	75.3	68.8	57.3	47.8	44.3	43.2	65.1
11/02/04	13:03:59	80.4	76.3	69.8	60.3	51.3	48.3	46.8	65.7
11/02/04	13:08:59	85.4	75.3	69.3	60.8	51.8	48.3	47.1	65.7
11/02/04	13:13:59	76.7	75.3	70.3	59.3	50.8	46.3	45.1	65.6
11/02/04	13:18:59	86.1	78.3	70.8	62.3	52.8	49.8	48.7	67.6
11/02/04	13:23:59	77.2	74.8	69.8	59.8	52.3	49.3	47.9	65.3
11/02/04	13:28:59	84.0	77.3	70.3	61.8	50.8	48.8	47.8	67.1
11/02/04	13:33:59	84.4	79.3	70.8	60.3	51.8	49.3	47.9	67.6
11/02/04	13:38:59	78.2	75.3	69.8	61.8	52.8	51.3	50.0	65.8
11/02/04	13:43:59	80.1	77.3	70.8	61.3	53.3	49.8	48.1	66.9
11/02/04	13:48:59	79.5	73.3	69.3	58.8	49.3	46.3	45.3	65.0
Mean 1hr Period				70.0		51.2			66.1

Ben Bailey Homes Limited

Proposed Residential Development On Land Off Burton Road, West Green / Monk Bretton, Barnsley.

Environmental Noise Monitoring Results

Instrumentation - B & K Type 2231 Precision Integrating SLM, B & K Type 4230 Calibrator

Instrumentation Calibration Date - 26th March 2001

Weather Conditions - 100% overcast, damp conditions, slight wind, 7C.

Monitoring Position: At eastern site boundary (Tumble Lane), opposite scrap yard / coal yard site entrances.

Set-Up:

Module #: 15 (BZ 7115) Time W. : F
Mic. Corr: + 0.8 dB Freq. W. : A
Pr. Time: 00:05:00 Rg. (dB): 20.8 - 93.8

Date	Time	MAXL	L(01)	L(10)	L(50)	L(90)	L(99)	MINL	LEQ	Site Activity	Scrap Yard	Coal Yard	Tumble Lane
14/02/04	07:48:34	64.3	61.8	50.3	45.3	43.3	41.8	41.0	49.7	Plant operating	Plant operating	Loading coal bags	3 cars
14/02/04	07:53:34	73.8	70.3	57.8	51.3	46.8	44.3	43.3	56.9	Plant operating	Plant operating	Loading coal bags	2 vans, JCB
14/02/04	07:58:34	71.0	60.8	52.8	48.3	45.3	43.3	42.1	50.9	Plant operating	Plant operating	Loading coal bags	1 car
14/02/04	08:03:34	65.1	57.8	51.3	46.8	44.3	43.3	42.2	49.0	Plant operating	Plant operating	Gates opened	0
14/02/04	08:08:34	63.1	58.3	52.8	46.8	44.8	43.3	42.5	49.5	Plant operating	Plant operating	Loading coal bags	3 cars
14/02/04	08:13:34	69.2	62.3	52.3	47.3	44.8	42.8	42.0	51.2	Plant operating	Plant operating	Car in	1 car, 1 van
14/02/04	08:18:34	64.7	59.3	49.8	46.8	44.8	42.8	41.6	48.9	Plant operating	Plant operating	Car in	2 cars
14/02/04	08:23:34	71.9	67.3	58.8	51.8	48.3	45.8	43.9	56.3	Plant operating	Plant operating	Car in	3 cars, 1 HGV
14/02/04	08:28:34	69.5	65.3	58.3	51.3	46.3	43.8	42.2	54.9	Plant operating	Plant operating	Car, van departs	4 cars, 1 van
14/02/04	08:33:34	67.6	65.3	59.3	51.3	46.3	44.3	43.4	54.9	Plant operating	Plant operating	Car departs	4 cars, 1 van
14/02/04	08:38:34	88.8	79.8	65.8	61.3	54.8	53.3	52.5	67.0	Site plant clearing scrap near instrument			
14/02/04	08:43:34	87.1	78.3	70.8	61.8	56.3	51.8	50.7	68.0	Site plant clearing scrap near instrument			
14/02/04	08:48:34	81.2	76.8	68.3	59.8	56.8	53.8	52.7	65.3	Site plant clearing scrap near instrument			
14/02/04	08:53:34	87.4	82.3	72.8	61.3	56.8	53.8	53.2	70.0	Site plant clearing scrap near instrument			
14/02/04	08:58:34	88.9	84.3	74.3	62.8	57.8	53.3	52.1	71.6	Site plant clearing scrap near instrument			

Date	Time	MAXL	L(01)	L(10)	L(50)	L(90)	L(99)	MINL	LEQ	Site Activity	Sc
14/02/04	09:03:34	87.7	82.8	75.3	63.3	60.8	59.3	57.9	71.5	Site plant clearing scrap near instrument	
14/02/04	09:08:34	90.9	85.3	75.8	63.8	60.8	51.8	51.5	73.2	Site plant clearing scrap near instrument	
14/02/04	09:13:34	80.1	72.3	63.3	50.3	46.8	45.3	44.1	60.6	Site plant clearing scrap near instrument	
14/02/04	09:18:34	78.3	67.3	60.8	50.3	46.3	44.8	44.0	57.3	Plant operating Plant operating Loading coal hoppers	4 cars, 1 lorry
14/02/04	09:23:34	67.6	64.8	53.8	48.8	45.3	43.8	42.8	52.8	Plant operating Plant operating Noise not discernible	5 cars
14/02/04	09:28:34	77.4	64.3	54.8	48.8	46.3	44.8	44.2	54.3	Plant operating Plant operating Car in, car out	4 cars, plane
14/02/04	09:33:34	67.3	62.8	56.3	49.8	46.3	43.3	42.6	53.1	Plant operating Plant operating Car in, car out	5 cars, 1 van
14/02/04	09:38:34	67.2	63.3	53.8	49.3	46.8	45.3	44.0	52.1	Plant operating Plant operating Car departs	5 cars
14/02/04	09:43:34	66.2	59.3	52.8	49.8	46.8	44.8	43.8	51.2	Plant operating Plant operating Noise not discernible	2 cars
14/02/04	09:48:34	65.4	63.3	56.3	50.3	47.3	45.8	44.9	53.3	Plant operating Plant operating Car departs	5 cars
14/02/04	09:53:34	74.3	67.8	56.3	51.8	49.8	48.3	47.6	56.0	Plant operating Plant operating Noise not discernible	2 cars, 1 HGV
14/02/04	09:58:34	64.1	61.8	56.3	48.3	46.3	44.8	44.1	52.4	Plant operating Plant operating Loading coal hoppers	4 cars
14/02/04	10:03:34	65.1	61.8	55.8	49.8	47.3	45.3	44.6	52.6	Plant operating Plant operating Loading coal hoppers	5 cars
14/02/04	10:08:34	73.2	60.8	51.3	48.3	46.3	44.8	44.1	51.8	Plant operating Plant operating Loading coal hoppers	3 cars
14/02/04	10:13:34	67.7	62.3	54.8	48.3	46.3	44.8	44.1	51.9	Plant operating Plant operating Loading coal hoppers	3 cars
14/02/04	10:18:34	82.4	65.8	53.8	46.8	43.8	42.3	41.5	57.0	Plant standing Plant standing Noise not discernible	7 cars
14/02/04	10:23:34	77.0	65.3	56.3	47.8	43.8	41.8	41.0	55.7	Plant standing Plant standing Van in	3 cars, 1 m/bike
14/02/04	10:28:34	67.2	64.3	56.8	48.3	44.8	43.3	41.9	53.2	Plant standing Plant standing Van out	6 cars
14/02/04	10:33:34	70.4	66.8	52.3	46.8	44.8	41.8	40.4	53.4	Plant standing Plant standing Noise not discernible	6 cars
14/02/04	10:38:34	66.8	63.8	58.8	49.3	45.3	43.3	42.4	54.4	Plant operating Plant operating Loading coal hopper	7 cars, 2 vans
14/02/04	10:43:34	65.2	60.8	55.3	48.8	45.3	43.3	42.4	51.7	Plant operating Plant operating Car in	5 cars
14/02/04	10:48:34	67.2	63.8	55.3	48.8	45.8	43.8	43.3	52.9	Plant operating Plant operating Car departs	5 cars, 1 van