



# EfW CHP Facility, Devonport

Non-Destructive Testing  
Noise Report

3rd October 2013

Prepared for:



UNITED  
KINGDOM &  
IRELAND



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## EXECUTIVE SUMMARY

On Thursday 3<sup>rd</sup> October 2013 noise monitoring was undertaken for MVV Environment Devonport Ltd (MVV) at three sensitive residential receptors close to the site boundary, to determine the noise levels during the second evening of Non-Destructive Testing (NDT).

The following noise levels were recorded:

- At R3 (Savage Road): 53 dB  $L_{Aeq3hr}$  (façade): 2 dB above the baseline.
- At R15 (Talbot Gardens): 47 dB  $L_{Aeq3hr}$  (façade): 4 dB above the baseline
- At Cardinal Ave: 51 dB  $L_{Aeq3hr}$  (free-field)/ 54 dB  $L_{Aeq3hr}$  (façade): 3 dB above the baseline

Noise levels recorded were within the Plymouth City Council's Code of Construction Practice noise limits for weekday evening work and within 5 dB of the baseline noise level.

Noise was dominated by road traffic and a sports game held on the naval base. The noise from the sports game in HMNB was louder than the previous day and that from baseline monitoring as the game had spectators. Cheering, chanting, clapping and whistles could all be heard, as well as raised voices from the players. This was the dominant noise source at Talbot Gardens and Savage Road, however it could still be heard at Cardinal Ave. There was also increased noise from HMNB, most noticeable when the football match had ended, with a ship being loaded/unloaded; a hum and whirring noise was also noted from that direction.

No site noise was noticeable at Cardinal Ave and only very occasional instantaneous noises were recorded at both Savage Road and Talbot Gardens, which took the form of a quiet clink and individual beeps— this was noted as not being louder than other background noises, and potentially unnoticeable to those unaware that NDT was occurring.

## 1. INTRODUCTION

MVV Environment Devonport Ltd (MVV) undertook Non-Destructive Testing (NDT) outside usual working hours for the second time on 3<sup>rd</sup> October 2013, between 18:00 and 21:00. MVV commissioned URS to undertake noise monitoring at three sensitive residential receptors close to the site boundary.

This report describes the methodology and findings of the noise survey undertaken on this day.

An introduction to noise perception and an explanation of the terminology used within this report are provided in Appendix A.

### 1.1 Baseline Noise Limits

Baseline noise levels were monitored prior to NDT works commencing; with noise limits set based on Plymouth City Council's Code of Construction Practice. Table 1 shows baseline noise levels and the noise limits.

TABLE 1: BASELINE NOISE LEVELS AND NOISE LIMITS FOR NDT					
Location	Time	Ambient L <sub>Aeq,4hr</sub> (dB)		Noise Limits (based on façade measurement)	
		Free Field	Façade	L <sub>Aeq,4hr</sub> <sup>*1</sup> dB	L <sub>Aeq,1hr</sub> <sup>*2</sup> dB
R3 (Savage Road)	Weekend	-	54	64	67
	Weekday	-	51	61	64
R15 (Talbot Gardens)	Weekend	-	45	60	63
	Weekday	-	43	58	61
Cardinal Ave	Weekend	N/A	N/A	N/A	N/A
	Weekday	48	51	61	64

<sup>\*1</sup> The L<sub>Aeq,4hr</sub> noise limit shall be applied to both the 3 hour and 4 hour noise measurements of NDT

<sup>\*2</sup> The L<sub>Aeq,1hr</sub> noise limit shall be applied when undertaking 1 hour noise measurements of NDT

## 2. SITE DESCRIPTION

The EfW CHP facility is currently being constructed in the North Yard of Her Majesty's Naval Base (HMNB), beside Camels Head junction (the junction between the A3064 and Wolseley Road). The development is located close to a number residential properties, most noticeably those in Barne Barton to the north of the site, as well as on Cardinal Ave to the north-east.

## 3. METHODOLOGY AND ASSESSMENT CRITERIA

The monitoring procedure conformed to BS 7445: 2003 'Description and Measurement of Environmental Noise', with measurements at Savage Road and Talbot Gardens taken 1 metre from the façade of residential receptors at a height of 1.35 metres. At Cardinal Ave, the measurement was taken free-field, over 3.5 metres from the façade. Average wind speeds were below 5 ms<sup>-1</sup>.

## 4. NON-DESTRUCTIVE TESTING NOISE SURVEY

### 4.1 Protocol

Due to the lack of secure monitoring locations, it was not possible to leave equipment unattended. Consequently, manned noise monitoring has been undertaken.

Monitoring was undertaken simultaneously at three locations representative of the closest receptors to the site during the whole period of NDT works occurring on site; logging L<sub>Aeq</sub> and L<sub>AFmax</sub> levels in contiguous 5-minute periods. Table 1 lists the noise monitoring locations shown in Figure 1, Appendix B, as well as the time monitoring was undertaken.

TABLE 2: NOISE MONITORING LOCATION AND TIMINGS				
Location*	Road	Details	Date	Time
R3	Savage Road	Representative of the closest noise sensitive properties to the north west (approx. 100 metres from the Site).	Thursday 3 <sup>rd</sup> October 2013 (weekday)	18:00 – 21:00
R15	Talbot Gardens	Representative of the closest noise sensitive properties to the north (approx. 60 metres from the Site).	Thursday 3 <sup>rd</sup> October 2013 (weekday)	18:00 – 21:00
-	Cardinal Ave	Representative of the closest noise sensitive properties to the north-east (approx. 200 metres from the Site).	Thursday 3 <sup>rd</sup> October 2013 (weekday)	18:00 – 21:00

\* Correlates with residential receptors for the Environmental Statement for the EfW CHP facility (11/00750/FUL)

## 4.2 Instrumentation

Three sound level meters were utilised for the monitoring:

- A Rion NL52 sound level meter, serial number 00510148 was used at R3;
- A Rion NL52 sound level meter, serial number 00620802 was used at R15; and
- A Rion NL52 sound level meter, serial number 00821105 was used at Cardinal Avenue.

Full calibration details are available upon request.

The calibration levels were checked prior to and following the measurements with a:

- Rion NC-74 field calibrator, serial number 34672983.

No significant drift (+/- 0.1 dB) was noted

## 4.3 Meteorological Conditions

Weather conditions during the measurements were as shown below in Table 3.

TABLE 3: WEATHER CONDITIONS DURING NOISE MONITORING					
Location	Date/ Time	Max Wind Speed (m/s)	Wind Direction	Temperature	Precipitation
R3	03/10/2013 18:00-21:00	2.0 - 2.5	SW-SE	16-17°C	None
R15	03/10/2013 18:00-21:00	0.5 - 2.0	SE	16-17°C	None
Cardinal Ave	03/10/2013 18:00-21:00	1.5 - 3.0	SE	16-17°C	None



#### 4.4 Commentary

The following observations of local noise sources were made whilst at the site during monitoring:

- At R3 (Savage Road) the noise climate was dominated by local road traffic noise on Savage Road (vehicles and motorbikes) and other surrounding roads (particularly Wolseley Road); trains; a sports game (with chanting, cheering and clapping spectators) on the floodlit sports pitch in HMNB between approximately 18:40 and 19:45 (approx. 400 metres away, though shielded by the mass of the EfW CHP facility); and noise from HMNB with the loading/unloading of a ship. Occasional quiet 'clinks', and intermittent individual 'beeps' were noted by the surveyor which were presumed to originate from site. It was noted that these site noises were not louder than other background noise, and potentially unnoticeable to those unaware that NDT was occurring.
- At R15 (Talbot Gardens) the noise climate was dominated by a mixture of noise from: road traffic from surrounding roads (particularly Savage Road and Wolseley Road); passing trains; a sports game on the floodlit sports pitch in HMNB (with chanting, cheering and clapping spectators) between approximately 18:40 and 19:45 (approx. 300 metres away); noise from HMNB with the loading/unloading of a ship; as well as the noise of birds in Blackie Wood. Also present was occasional noise from vehicles passing on Talbot Gardens and residents talking on their balconies. Occasional noises were noted by the surveyor which were presumed to originate from site. It was noted that these site noises were not louder than other background noise, and potentially unnoticeable to those unaware that NDT was occurring.
- At Cardinal Ave the noise climate was dominated by a mixture of noise from: road traffic on Cardinal Ave (cars manoeuvring, parking and passing etc...) as well as from surrounding roads (particularly Wolseley Road); passing trains; and a sports game on the floodlit sports pitch in HMNB between approximately 18:40 and 19:45 (approx. 500 metres away). No site noise was noticeable at Cardinal Ave.

No long-term site noise was noticed at any receptor, any instantaneous noises or periodic noises were from site were noted and are shown in Appendix C, Table C1 to C3.

#### 4.5 Results

The results of noise monitoring undertaken on 3<sup>rd</sup> October 2013 are given below in Table 4.

The full noise survey data for all three sites are provided in Appendix C, Table C1 to C3.

TABLE 4: BASELINE NOISE LEVELS AND NOISE LIMITS FOR NDT								
Location	Date & Time	NDT Noise Level LAeq,3hr (dB)		Noise Level LA <sub>Fmax</sub> (dB)	Baseline LAeq,4hr (dB)		Noise Limits (based on façade measurement)	Difference between NDT Noise Level and Baseline (dB)
		Free Field	Façade		Free Field	Façade	LAeq,4hr dB	
R3	03/10/2013 18:00-21:00	-	53	78	-	51	61	2
R15	03/10/2013 18:00-21:00	-	47	79	-	43	58	4
Cardinal Ave	03/10/2013 18:00-21:00	51	54	80	48	51	61	3

A football match was being played on both the floodlit sports pitches in HMNB between approximately 18:40 and 19:45. The perceived noise from this was louder than the previous day and that from baseline monitoring, as the game had spectators. Cheering, chanting, clapping and whistles could all be heard, as well as raised voices from the players. This was the dominant noise source at Talbot Gardens and Savage Road, however it could still be heard at Cardinal Ave. There was also increased noise from HMNB, most noticeable when the football match had ended, with a ship being loaded/unloaded; a hum and whirring noise was also noted from that direction.

The surveyor at Cardinal Ave had many residents talking to them in close proximity to the SLM and as such these sections of data have been removed.

The recorded noise levels at all three receptors were below the adopted noise limits and within 5 dB of the baseline level. It was noted by all surveyors that NDT works were not the dominant noise source at any location; in particular at Cardinal Ave no NDT works noise was picked up by the surveyor. The only site noise that was noted was the occasional instantaneous noise, which either took the form of a clinking noise or a periodic beep, these were all recorded by the surveyors and included in Appendix C, Table C1 and C2.

Individual 'beeps' over a five minute period of time could be heard intermittently on site from Savage Road; only noticeable when other previously more dominant noise sources were quieter. A noise level of approximately 50dB  $L_{AFinst}$  was noted by the surveyor for these noises. The beeps were not intrusive and unlikely to be heard by residents.

The  $L_{AFmax}$  included in Table 4 was not a result of NDT testing, instead due to off-site noises. For Talbot Gardens and Savage Road, this corresponds with the surveyor checking the SLM; and for Cardinal Ave this corresponds with a car passing the SLM with squeaking breaks and a taxi turning in front of the meter.

It was noted by surveyors that if residents were unaware of NDT occurring, they would unlikely have noticed these minor site noises.

## APPENDIX A NOISE PERCEPTION AND TERMINOLOGY

Between the quietest audible sound and the loudest tolerable sound there is a million to one ratio in sound pressure (measured in Pascals (Pa)). Because of this wide range a noise level scale based on logarithms is used in noise measurement called the decibel (dB) scale. Audibility of sound covers a range of approximately 0 to 140 dB.

The human ear system does not respond uniformly to sound across the detectable frequency range and consequently instrumentation used to measure noise is weighted to represent the performance of the ear. This is known as the 'A weighting' and annotated as dB (A). Table 1 below lists the sound pressure level in dB (A) for common situations.

**Table 1: Sound Pressure Levels for a Range of Situations**

Typical Noise Levels dB(A)	Example
0	Threshold of hearing
30	Rural area at night, still air
40	Public library Refrigerator humming at 2m
50	Quiet office, no machinery Boiling kettle at 0.5m
60	Normal conversation
70	Telephone ringing at 2m Vacuum cleaner at 3m
80	General factory noise level
100	Pneumatic drill at 5m
120	Discotheque - 1m in front of loudspeaker
140	Threshold of pain

The noise level at a measurement point is rarely steady, even in rural areas, and varies over a range dependent upon the effects of local noise sources. Close to a busy road, the noise level may vary over a range of 5 dB(A), whereas in a suburban area this may increase by up to 40 dB(A) and more due to the multitude of noise sources in such areas (cars, dogs, aircraft etc.) and their variable operation. Furthermore, the range of night time noise levels will often be smaller and the levels significantly reduced compared to daytime levels.

The equivalent continuous A-weighted sound pressure level, LAeq, is the single number that represents the average sound energy measured over that period. The LAeq is the sound level of a notionally steady sound having the same energy as a fluctuating sound over a specified measurement period.

Human subjects are generally only capable of noticing changes in noise levels of no less than 3 dB(A). It is generally accepted that a change of 10 dB(A) in an overall, steady noise level is perceived to the human ear as a doubling (or halving) of the noise level.

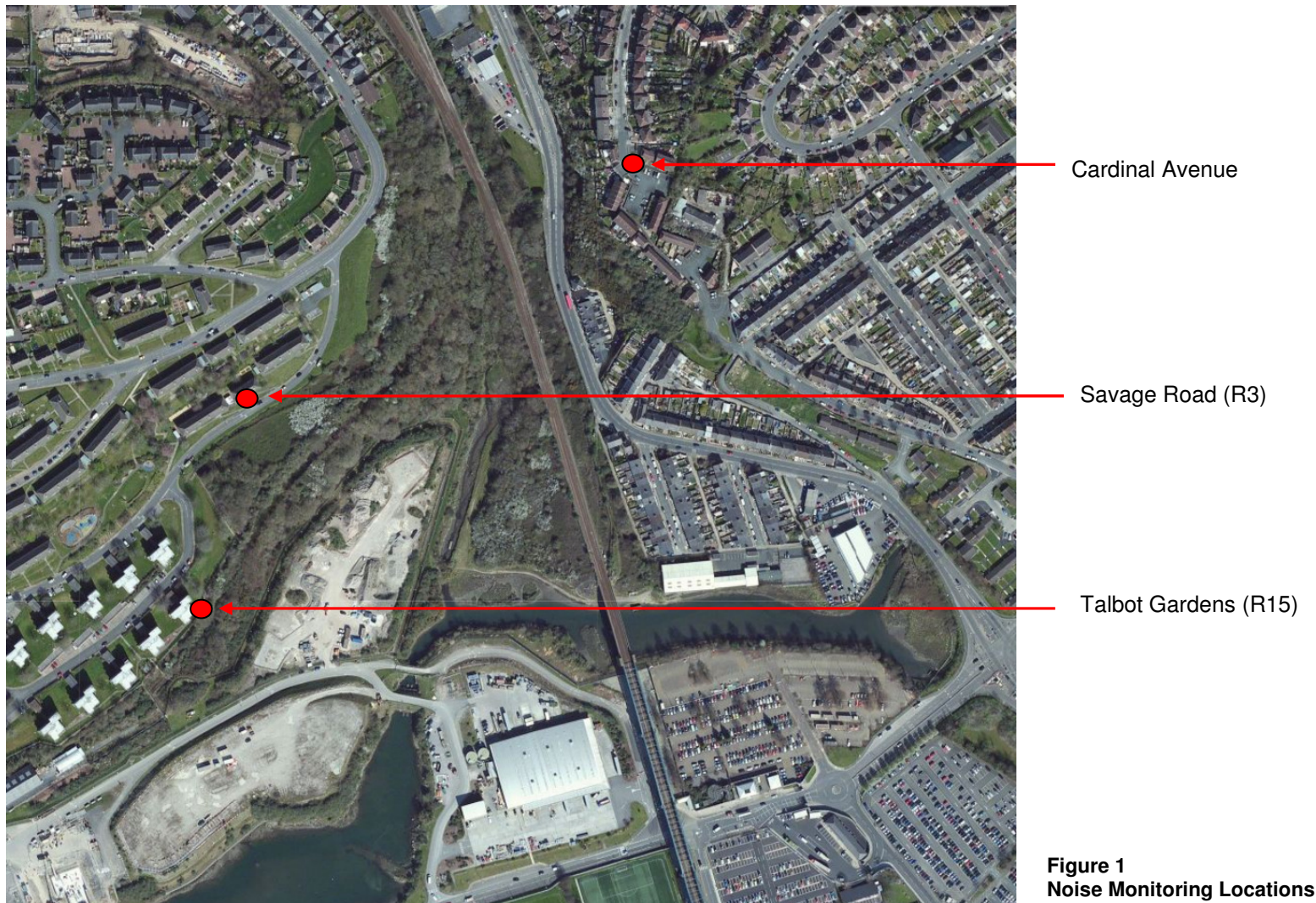
A parameter that is widely accepted as reflecting human perception of the ambient noise is the background noise level, LA90. This is the noise level exceeded for 90% of the measurement

period and generally reflects the noise level in the lulls between individual noise events. Over a 1-hour period the LA90 will be the noise level exceeded for 54 minutes.

The parameter LA10 is used to describe road traffic noise. This is the noise level exceeded for 10 % of the measurement period. Over a one hour period, the LA10 will be the noise level exceeded for 6 minutes.

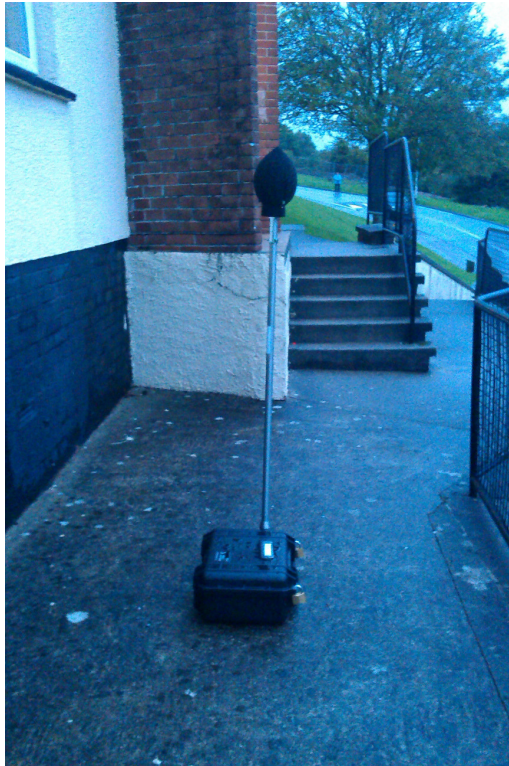
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**APPENDIX B NOISE MONITORING RECEPTORS**





## Receptor R3 (Savage Road)





**Receptor R15 (Talbot Gardens)**

## Cardinal Avenue





## APPENDIX C FULL NOISE MONITORING RESULTS

Tables C1 to C3 list the full suite of measured noise data.

TABLE C1: SAVAGE ROAD MEASURED NOISE LEVELS					
Date & Start time	Duration	L <sub>Aeq</sub> (dB)	L <sub>AFmax</sub> (dB)	L <sub>AF90</sub> (dB)	Notes
03/10/2013 18:00	00:05:00.0	53.9	64	49	Instantaneous clinking noise from site
03/10/2013 18:05	00:05:00.0	52.5	65.3	48.9	
03/10/2013 18:10	00:05:00.0	54.9	67.2	49.6	Instantaneous clinking noise from site
03/10/2013 18:15	00:05:00.0	54.2	67.8	48.7	Drainpipe 1m away squeaking
03/10/2013 18:20	00:05:00.0	50.7	67	47.8	
03/10/2013 18:25	00:05:00.0	54	63.6	49.5	Noise from naval base (like dropping of rubble)
03/10/2013 18:30	00:05:00.0	53.6	63	48.1	
03/10/2013 18:35	00:05:00.0	52.4	65.5	47.3	Instantaneous noise from unknown location Two children screaming nearby
03/10/2013 18:40	00:05:00.0	52	65	47.7	
03/10/2013 18:45	00:05:00.0	53.7	68.5	47.6	Resident walking in front of equipment
03/10/2013 18:50	00:05:00.0	56.5	73.1	48.2	Taxi parked below with people talking loudly
03/10/2013 18:55	00:05:00.0	52.8	71.3	48.4	Instantaneous clinking noise from site
03/10/2013 19:00	00:05:00.0	52.1	64.4	49.1	
03/10/2013 19:05	00:05:00.0	53.3	62.8	48.8	
03/10/2013 19:10	00:05:00.0	54.6	77.2	49.4	
03/10/2013 19:15	00:05:00.0	54.4	70	48.2	
03/10/2013 19:20	00:05:00.0	50.6	61.2	47.3	
03/10/2013 19:25	00:05:00.0	49.3	59.8	46.9	Four instantaneous clinking noises from site
03/10/2013 19:30	00:05:00.0	53	65.8	46.9	
03/10/2013 19:35	00:05:00.0	53.5	69.4	48.6	
03/10/2013 19:40	00:05:00.0	52.9	67	48.4	Car revving below SLM;

**TABLE C1: SAVAGE ROAD MEASURED NOISE LEVELS**

Date & Start time	Duration	L <sub>Aeq</sub> (dB)	L <sub>AFmax</sub> (dB)	L <sub>AF90</sub> (dB)	Notes
					Periodic beeps noise from site direction
03/10/2013 19:45	00:05:00.0	54.6	65	48.9	
03/10/2013 19:50	00:05:00.0	53	77.2	48	Child screaming next to SLM; Periodic beeps from site direction
03/10/2013 19:55	00:05:00.0	49	61	46.7	Instantaneous clinking noise from site; Periodic beeps from site direction
03/10/2013 20:00	00:05:00.0	51.5	64.3	47.1	Periodic beeps from site direction; Distant siren; Four instantaneous clinking noises from site
03/10/2013 20:05	00:05:00.0	50.9	62.1	46.9	Resident talking by SLM
03/10/2013 20:10	00:05:00.0	57.1	76	46.9	Periodic beeps from site direction; Moped revving below SLM; Person banging a gate in distance
03/10/2013 20:15	00:05:00.0	53.6	78.4	47.3	Equipment checked - Lmax due to clips being sealed; Periodic beeps from site direction
03/10/2013 20:20	00:05:00.0	49	59.5	46.8	Instantaneous clinking noise from site
03/10/2013 20:25	00:05:00.0	51.6	68	46.4	Periodic beeps from site direction; Whistling in distance
03/10/2013 20:30	00:05:00.0	52.7	64.8	46.8	Periodic beeps from site direction
03/10/2013 20:35	00:05:00.0	52.8	64.5	46.7	Periodic beeps from site direction
03/10/2013 20:40	00:05:00.0	53	67.1	46.4	Instantaneous clinking noise from site; Man jogging next to meter with bag; Sirens in distance; Dog barking in distance
03/10/2013 20:45	00:05:00.0	51.6	64.8	46	Instantaneous clinking noise from site; Distant loud bang (not site)
03/10/2013 20:50	00:05:00.0	48.9	58.5	45.6	

**TABLE C1: SAVAGE ROAD MEASURED NOISE LEVELS**

Date & Start time	Duration	L <sub>Aeq</sub> (dB)	L <sub>AFmax</sub> (dB)	L <sub>AF90</sub> (dB)	Notes
03/10/2013 20:55	00:05:00.0	48	58.4	46.1	

**TABLE C2: TALBOT GARDENS MEASURED NOISE LEVELS**

Date & Start time	Duration	L <sub>Aeq</sub> (dB)	L <sub>AFmax</sub> (dB)	L <sub>AF90</sub> (dB)	Notes
03/10/2013 18:00	00:05:00.0	49.1	79	44.1	Closed case of SLM, loud click; Some quiet voices from workers leaving site.
03/10/2013 18:05	00:05:00.0	47.2	59.2	44.7	
03/10/2013 18:10	00:05:00.0	46.9	56.8	44.4	Quiet clatter east of SLM, possibly Naval Base
03/10/2013 18:15	00:05:00.0	46.3	60	43.6	Resident on balcony behind SLM smoking, occasional quiet talking
03/10/2013 18:20	00:05:00.0	44.1	55	42.3	Resident on balcony behind SLM smoking, occasional quiet talking
03/10/2013 18:25	00:05:00.0	46.6	55.8	43.7	
03/10/2013 18:30	00:05:00.0	44.9	57	42.7	Power tool being used somewhere on Talbot Garden; Dog yapping in distance.
03/10/2013 18:35	00:05:00.0	45.7	58.9	42.6	
03/10/2013 18:40	00:05:00.0	45.7	58.1	43	Sport game on Naval Base begins – spectators – clapping, shouting, chanting, whistles, cheering etc.... Both pitches being used.
03/10/2013 18:45	00:05:00.0	47.7	64.8	43.1	
03/10/2013 18:50	00:05:00.0	50.6	62.9	43.7	Train – louder than usual; Power tool being used somewhere on Talbot Garden; Distant siren
03/10/2013 18:55	00:05:00.0	51.1	66.7	43.9	Loud birdsong at dusk
03/10/2013 19:00	00:05:00.0	47.5	64.1	44.8	Clapping from sports game
03/10/2013 19:05	00:05:00.0	47.8	66.8	44.3	
03/10/2013 19:10	00:05:00.0	48.4	65.4	44.5	
03/10/2013 19:15	00:05:00.0	46.5	57.2	43	
03/10/2013 19:20	00:05:00.0	45.9	58.5	43.4	
03/10/2013 19:25	00:05:00.0	44.7	62	42.6	
03/10/2013 19:30	00:05:00.0	48.1	58.6	42.7	
03/10/2013 19:35	00:05:00.0	47.6	59.9	43.5	

**TABLE C2: TALBOT GARDENS MEASURED NOISE LEVELS**

Date & Start time	Duration	L <sub>Aeq</sub> (dB)	L <sub>AFmax</sub> (dB)	L <sub>AF90</sub> (dB)	Notes
03/10/2013 19:40	00:05:00.0	47.5	59.7	44.2	Cheering from sports game
03/10/2013 19:45	00:05:00.0	49.2	57.6	44.6	Loud train
03/10/2013 19:50	00:05:00.0	52.5	74.4	43.1	Clapping and cheering as sports game ends; Resident talking on balcony and child screaming; Sports pitch quiet
03/10/2013 19:55	00:05:00.0	47.6	67.6	42.5	Clinking noise on site
03/10/2013 20:00	00:05:00.0	45.9	60.8	43.5	Distant siren
03/10/2013 20:05	00:05:00.0	46.4	64.1	42.7	
03/10/2013 20:10	00:05:00.0	43.9	63.2	42.5	Moped passing on Talbot Gardens
03/10/2013 20:15	00:05:00.0	44.1	50.9	42.5	
03/10/2013 20:20	00:05:00.0	44.4	51.2	42.7	Loudspeaker in naval base
03/10/2013 20:25	00:05:00.0	44.3	52	41.8	
03/10/2013 20:30	00:05:00.0	47.1	63.1	42.7	Loud train; Surveyor sneezed loudly; Motorbike in distance
03/10/2013 20:35	00:05:00.0	43.7	50.4	42.1	
03/10/2013 20:40	00:05:00.0	44.8	59.8	41.8	Instantaneous noise on site – possibly a door closing; Distant siren and motorbike; Dog barking; Rattle of metal (something on site in the wind maybe)
03/10/2013 20:45	00:05:00.0	44.8	54.9	41.7	Rattle of metal (something on site in the wind maybe); Train; Voices from naval base; Dog barking from naval base; Boat horn in naval base.
03/10/2013 20:50	00:05:00.0	45.2	55.3	41.9	Loud train
03/10/2013 20:55	00:05:00.0	44	56.9	42.2	Rattle of metal (something on site in the wind maybe); Dog barking from naval base; Voices from naval base.

**TABLE C3: CARDINAL AVENUE MEASURED NOISE LEVELS**

Date & Start time	Duration	L <sub>Aeq</sub> (dB)	L <sub>AFmax</sub> (dB)	L <sub>AF90</sub> (dB)	Notes
03/10/2013 18:00	00:05:00.0	Residents and children talking to surveyor			
03/10/2013 18:05	00:05:00.0				
03/10/2013 18:10	00:05:00.0				
03/10/2013 18:15	00:05:00.0				
03/10/2013 18:20	00:05:00.0	50.1	67.6	44.9	Residents moving cars (~5m away)
03/10/2013 18:25	00:05:00.0	52.7	69.7	45.2	
03/10/2013 18:30	00:05:00.0	50.2	65.7	44.6	Revvng car and slamming door (~10m away)
03/10/2013 18:35	00:05:00.0	57.5	79.3	43.9	Revvng car and slamming door (~10m away)
03/10/2013 18:40	00:05:00.0	48	67.2	44.3	Motorbike starting up in distance; Resident laughing (15-20m away)
03/10/2013 18:45	00:05:00.0	Taxi revving loudly and person talking 2m away from SLM			
03/10/2013 18:50	00:05:00.0	50.3	65.7	45.2	
03/10/2013 18:55	00:05:00.0	55.3	80.2	45.2	Squeaking brakes in front of SLM; Taxi turning (~2m)
03/10/2013 19:00	00:05:00.0	53	71	46	Door slam and talking (2m away); Residents moving cars around (~10m)
03/10/2013 19:05	00:05:00.0	Residents talking to surveyor			
03/10/2013 19:10	00:05:00.0				
03/10/2013 19:15	00:05:00.0	47.4	57.3	44.4	
03/10/2013 19:20	00:05:00.0	50.4	69.1	44.4	
03/10/2013 19:25	00:05:00.0	45.6	60.1	44.2	
03/10/2013 19:30	00:05:00.0	Residents talking to surveyor			
03/10/2013 19:35	00:05:00.0	50.5	64.4	45.9	Revvng motorbike (~15m)
03/10/2013 19:40	00:05:00.0	46.6	65.8	44.7	Gust of wind (3m/s approx); Cheering from sports pitch on naval base
03/10/2013 19:45	00:05:00.0	56.4	76.2	45.7	Slamming door (~2m); Revvng bike (~15m)
03/10/2013 19:50	00:05:00.0	52.6	69.8	44.8	Loud music from car next to SLM;



**TABLE C3: CARDINAL AVENUE MEASURED NOISE LEVELS**

Date & Start time	Duration	L <sub>Aeq</sub> (dB)	L <sub>AFmax</sub> (dB)	L <sub>AF90</sub> (dB)	Notes
					Car door slamming (~10m)
03/10/2013 19:55	00:05:00.0	52.2	71.6	43.4	
03/10/2013 20:00	00:05:00.0	46.6	63.7	43.8	Unidentified screeching sound from site/naval base direction; Distant siren
03/10/2013 20:05	00:05:00.0	45.1	52.1	43.5	
03/10/2013 20:10	00:05:00.0	45.6	56.7	43.5	
03/10/2013 20:15	00:05:00.0	53.7	75.6	44.1	Car turning and revving next to meter
03/10/2013 20:20	00:05:00.0	48.8	65	43.4	
03/10/2013 20:25	00:05:00.0	50.7	65	43.1	Taxi turning (~10m)
03/10/2013 20:30	00:05:00.0	Residents talking to surveyor			
03/10/2013 20:35	00:05:00.0	43.5	55.7	41.8	Slamming door (~10m)
03/10/2013 20:40	00:05:00.0	53.7	74.4	42.4	Slamming door (~10m); Car turning (~10m); Slamming door and car moving (~5m)
03/10/2013 20:45	00:05:00.0	44.9	55.5	42.1	
03/10/2013 20:50	00:05:00.0	47.1	64.6	41.9	House door banging (~5m)
03/10/2013 20:55	00:05:00.0	44.3	53.1	41.8	

