



EfW CHP Facility, Devonport

Non-Destructive Testing
Noise Report

11th August 2014

Prepared for:



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EXECUTIVE SUMMARY

On Thursday 7th August 2014 noise monitoring was undertaken for MVV Environment Devonport Ltd (MVV) at two sensitive residential receptors close to the site boundary, to determine the noise levels during Non-Destructive Testing (NDT).

The following noise levels were recorded:

- At R3 (Savage Road): 57 dB $L_{Aeq,50min}$ (façade): 6 dB above the baseline; and
- At R15 (Talbot Gardens): 42 dB $L_{Aeq,50min}$ (façade): 1 dB below the baseline.

Noise levels recorded were within Plymouth City Council's Code of Construction Practice noise limits for weekday evening work, with the noise level recorded at R15 being 1 dB below the baseline ($L_{Aeq, 50min}$); and 6 dB above the baseline at R3 ($L_{Aeq, 50min}$). No site noises were recorded at either Savage Road or Talbot Gardens during the monitoring period. Noise was instead dominated by road traffic; residential noise; and noise from the adjacent naval base. The noise level recorded at R3 is higher than preceding monitoring sessions, however this was un-attributable to NDT testing, instead this increase was due to residential noise.

1. INTRODUCTION

MVV Environment Devonport Ltd (MVV) undertook Non-Destructive Testing (NDT) outside usual working hours on Thursday 7th August 2014, between 18:00 and 22:00. MVV commissioned URS to undertake noise monitoring at two sensitive residential receptors close to the site boundary.

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

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 _{Aeq,4hr} (dB) | | Noise Limits (based on façade measurement) | |
| | | Free Field | Façade | L _{Aeq,4hr} ^{*1} dB | L _{Aeq,1hr} dB |
| R3 (Savage Road) | Weekend | - | 54 | 64 | 67 |
| | Weekday | - | 51 | 61 | 64 |
| R15 (Talbot Gardens) | Weekend | - | 45 | 60 | 63 |
| | Weekday | - | 43 | 58 | 61 |

^{*1} The L_{Aeq,4hr} noise limit shall be applied to all 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 of residential properties, most noticeably those in Barne Barton to the north of the site.

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 1.5 metres. Average wind speeds were below 5 ms⁻¹.

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 for a 50 minute period at each of the two locations representative of the closest receptors to the site. The measurements at the two locations were carried out consecutively; logging L_{Aeq} and L_{AFmax} levels in contiguous 5-minute periods.

Table 1 lists the noise monitoring locations 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 7 th August 2014 (weekday) | 18:00 – 18:55 |
| R15 | Talbot Gardens | Representative of the closest noise sensitive properties to the north (approx. 60 metres from the Site). | Thursday 7 th August 2014 (weekday) | 19:00– 19:50 |

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

4.2 Instrumentation

The sound level meter utilised for the monitoring:

- A B&K 2238 sound level meter, serial number 2562627 was used

Full calibration details are available upon request.

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

- B&K 4231 field calibrator, serial number 2217876 and no significant drift was noted (+/- 0.1 dB).

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 | 07/08/2014 18:00 – 18:55 | 0.1 | SW | 20°C | None |
| R15 | 07/08/2014 19:00– 19:50 | 0.1 | SW | 18°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); and residential noise. Residential noise consisted of: noise from within the properties besides the SLM (e.g. TV, music, conversation); noise from residents entering the building and walking past the SLM; and noise from residents and pedestrians parking up below the SLM. In addition there was also noise from passing trains; children playing in the play park on Savage Road; as well as bird song. No site noise was noticeable at the receptor.
- At R15 (Talbot Gardens) the noise climate was dominated by local road traffic noise on Savage Road (vehicles and motorbikes) and other surrounding roads (particularly Wolseley Road); as well as residential noise. Noise from the naval base also contributed to the noise climate, with a humming noise (presumed to be engine noise from a ship). In addition there was also noise from passing trains and bird song. No site noise was noticeable at the receptor.

4.5 Results

The results of noise monitoring undertaken on 7th August 2014 are given below in Table 4.

The full noise survey data for both sites are provided in Appendix A, Tables A1 and A2.

TABLE 4: BASELINE NOISE LEVELS AND NOISE LIMITS FOR NDT

| Location | Date & Time | NDT Noise Level LAeq,50min (dB) | | NDT Noise Level LAFmax (dB) | Baseline Noise Level LAeq,4hr (dB) | | Noise Limits (based on façade measurement) | Difference between NDT Noise Level (LAeq,50min) and Baseline (LAeq,4hr) (dB) |
|----------|-----------------------------|------------------------------------|--------|--------------------------------|---------------------------------------|--------|--|--|
| | | Free Field | Façade | Façade | Free Field | Façade | LAeq,4hr dB | |
| R3 | 07/08/2014 18:00 – 18:55 | - | 57 | 88 | - | 51 | 61 | 6 |
| R15 | 07/08/2014 19:00– 19:50 | - | 42 | 64 | - | 43 | 58 | -1 |

Noise levels recorded were within Plymouth City Council's Code of Construction Practice noise limits for weekday evening work, with the noise level recorded at R15 being 1 dB below the baseline ($L_{Aeq, 50min}$); and 6 dB above the baseline at R3 ($L_{Aeq, 50min}$). The L_{AFmax} events included in Table 4 were not a result of NDT testing, but instead due to off-site noises.

The noise level recorded at R3 is higher than preceding monitoring sessions, however this was un-attributable to NDT testing, as no site noises were recorded at either Savage Road or Talbot Gardens during the monitoring period. Instead this increase was due to residential noise, which consisted of: noise from within the properties besides the SLM (e.g. TV, music, conversation); noise from residents entering the building and walking past the SLM; and noise from residents and pedestrians parking up below the SLM.

Full monitoring results, complete with surveyor notes on the noise climate and extraneous noises, are recorded in Appendix A, Table A1 (Savage Road) and A2 (Talbot Gardens).

APPENDIX A: FULL NOISE MONITORING RESULTS

Tables A1 and A2 list the full suite of measured noise data.

| TABLE A1: SAVAGE ROAD MEASURED NOISE LEVELS | | | | | |
|---|----------|---|-------------------------|------------------------|---|
| Date & Start time | Duration | L _{Aeq} (dB) | L _{AFmax} (dB) | L _{AF90} (dB) | Notes |
| 07/08/2014 18:00 | 05:00.0 | Removed due to noise from residents talking to surveyor and dogs barking in proximity to SLM. | | | |
| 07/08/2014 18:05 | 05:00.0 | 56.4 | 84.6 | 42.5 | Dog barking below SLM and in flat beside SLM; car pulls up below SLM with music and talking; pedestrian walking past SLM. |
| 07/08/2014 18:10 | 05:00.0 | 51.9 | 67 | 42 | Residents walking past SLM talking; loud music from within flat by SLM; Train; loud car passing. |
| 07/08/2014 18:15 | 05:00.0 | 51.9 | 72.1 | 41.5 | Moved SLM allowing residents to pass by; residents walking past SLM talking. |
| 07/08/2014 18:20 | 05:00.0 | 49.6 | 68.8 | 42 | Resident walking past SLM. |
| 07/08/2014 18:25 | 05:00.0 | 51.3 | 73.5 | 41.5 | Residents walking down steps talking; dog barking. |
| 07/08/2014 18:30 | 05:00.0 | 64.8 | 88 | 41 | Moped starting up below SLM and leaving. |
| 07/08/2014 18:35 | 05:00.0 | 49 | 68.3 | 40 | |
| 07/08/2014 18:40 | 05:00.0 | 48.5 | 62 | 41 | |
| 07/08/2014 18:45 | 05:00.0 | 55.5 | 76.8 | 40.5 | Train; Surveyor briefly talking to residents. |
| 07/08/2014 18:50 | 05:00.0 | 50.5 | 66.2 | 40.5 | Car leaves below SLM. |

TABLE A2: TALBOT GARDENS MEASURED NOISE LEVELS

| Date & Start time | Duration | L _{Aeq} (dB) | L _{AFmax} (dB) | L _{AF90} (dB) | Notes |
|-------------------|----------|-----------------------|-------------------------|------------------------|---|
| 07/08/2014 19:00 | 05:00.0 | 41.2 | 58.2 | 38 | |
| 07/08/2014 19:05 | 05:00.0 | 40.6 | 53.9 | 38.5 | Train. |
| 07/08/2014 19:10 | 05:00.0 | 40.3 | 60 | 38 | |
| 07/08/2014 19:15 | 05:00.0 | 39.2 | 46.7 | 37.5 | Train. |
| 07/08/2014 19:20 | 05:00.0 | 44.5 | 64.3 | 38.5 | |
| 07/08/2014 19:25 | 05:00.0 | 40.5 | 54.9 | 37.5 | Pedestrians talking/shouting on Talbot Gardens. |
| 07/08/2014 19:30 | 05:00.0 | 40.8 | 62 | 37.5 | |
| 07/08/2014 19:35 | 05:00.0 | 43.9 | 58.4 | 39 | |
| 07/08/2014 19:40 | 05:00.0 | 40.7 | 52.7 | 38.5 | |
| 07/08/2014 19:45 | 05:00.0 | 44.8 | 60.3 | 38 | Train (x2). |