

Civil Engineering Dynamics Ltd.

8 11 Oak Walk,  
BedZED Centre,  
Hackbridge,  
Surrey, SM6 7DE



**CIVIL ENGINEERING DYNAMICS**

INCORPORATING  
Crockett & Associate  
ESTABLISHED 1948

Tel: 020 8647 1908

Fax: 020 8395 1556

e-mail: ced.co@virgin.net  
www.environmental.co.uk

AKS/3201revB

SEPT 2005

**NOISE SURVEY – 37 HAMILTON ROAD TWICKENHAM**

**Engineers:** A K Sharif PhD DIC CEng MSEE MIOA

1. INTRODUCTION
2. THE SITE
3. MEASUREMENT PROCEDURE
4. RESULTS
5. SUMMARY
6. CONCLUSION

**Figures 1-4**

**Limit of Liability**

*This report has been prepared by Civil Engineering Dynamics Ltd, within the scope of our quotation to the client for the project concerned. There may be additional communication with the client, which is pertinent, but not disclosed in this report. We accept no responsibility for data presented by other bodies and no legal liability arising from the use of this report by any other party.*

**Client:**

Frendcastle Management Ltd  
20 Mortlake High Street  
London  
SW14 8JN

**Signed by**

**Dr Ather Sharif**

Our standard Terms of Business: Procurement is only authorised when in writing. Work undertaken for clients is to be paid for within 30 days of invoice date, otherwise interest will be charged at 3% above Barclays Bank Finance House Base Rate. Equipment on hire to clients should be insured 'for loss or damage' up to full replacement value.

Registered in England No. 2213466, Registered Office as above

**NOISE SURVEY – 37 HAMILTON ROAD TWICKENHAM**

**SCOPE OF REPORT**

To present the results of a noise survey to assess the site for residential development in terms of Planning Policy Guidance PPG 24.

**1. INTRODUCTION**

- 1.1. Frenncastle Management Ltd intend to develop a site at 37 Hamilton Road, Twickenham.
- 1.2. Civil Engineering Dynamics Ltd were instructed to undertake a noise survey to assess the site for residential development.
- 1.3. Noise is assessed in terms of Planning Policy Guidance note 24 'Planning and Noise' (PPG24).

## CIVIL ENGINEERING DYNAMICS

### 2. THE SITE

- 2.1. Figure 1 shows an indicative site plan.
- 2.2. The site currently comprises a mix of storage and workshop uses, in former electricity station buildings and in outbuildings and ship container units.
- 2.3. Immediately to the North are railway tracks, and beyond that an open expanse of land. Adjoining to the West is an electricity sub-station, To the East is residential housing fronting Talbot Road. To the South is a terrace of residential properties fronting Hamilton Road.
- 2.4. The site exists at the end of Hamilton Road, a T junction. There are therefore very slow and infrequent vehicular movements in that road to the south. The site is therefore not subject to road traffic noise.
- 2.5. The site is characterised by noise from the frequent trains and the aircraft movement to Heathrow.
- 2.6. Whilst an electricity substation exist, no significant noise was evident during the site visits.
- 2.7. The existing use of the site, includes storage and workshops (e.g. woodworking machines). Noise was very evident from these activities.
- 2.8. A model of the proposed development is shown in Figure 2, and the northern elevation overlooking the railway in Figure 3. To the North is a dual aspect block, rising in height from East to West. The East side is formed by low rise single aspect live/work units. The West side is a taller single aspect block. A centrepiece in the new courtyard, is a retained block that will be restored.

### 3. MEASUREMENT PROCEDURE

- 3.1. The measurements were undertaken using two Brüel & Kjær 2238 Mediator Type 1 Sound Level Meter fitted with a windshield. Calibration of the unit was checked before and after the measurement period using a Brüel & Kjær 4231 Acoustic Calibrator. One unit was stationed for 24 hour logging, whilst the other unit was located at other locations on site for simultaneous sampling.
- 3.2. Values of  $L_{Aeq,T}$ ,  $L_{A90,T}$  and  $L_{AFmax,T}$  were logged (sample period T of 5 minutes) for a 24-hour period.
- 3.3. The measurement location (N1) was on the northern building line of the existing building, which was in the vicinity of the proposed façade of the new northern block. The presence of the ship containers on the northern boundary, would have screened noise to any ground floor noise monitoring location. Therefore it was necessary to locate the microphone as high as practical, which was arranged on site to be placed 3.9m above local ground level, and 4m from a principal noise reflecting façade. However the microphone was subject to reflected noise from the sloping roof, and so does not represent an ideal 'free-field' noise monitoring location. The ship containers act as a significant noise screen, and even though there were some gaps of 2m between containers it does screen the noise measurement from direct wheel rolling noise. It is recommended that, subject to appropriate permissions a barrier screen wall is built on the northern boundary to at least the same height as the ship

## CIVIL ENGINEERING DYNAMICS

containers (2.5m) to afford the new development a similar degree of noise screening, in particular to ground floor rooms.

- 3.4. Sample noise monitoring location N2 is shown in Figure 1, and was at a height of 2.4m and a distance of 2.4m from the nearest East façade of building 1.
- 3.5. Sample noise monitoring location N3 is shown in Figure 1, at a height of 2.4m and a distance of 4.1m from the nearest Southern façade of building 1.

### 4. RESULTS

- 4.1. The noise survey was undertaken at location N1 from midday 11.55 on Wednesday 14<sup>th</sup> September 2005 for 24-hours, shown in Figure 4. Simultaneous samples were taken at location N2 and location N3, on 14<sup>th</sup> and 15<sup>th</sup> September 2005 respectively. The results from locations N2 and N3 were contaminated by noise from the industrial units which would not exist in the new development, and so these results are not presented. These areas were otherwise observed to be well screened and quieter in respect of noise from the railway to the north.

- 4.2. Rainfall arose during the early morning on Thursday 15<sup>th</sup> Sept, and there was a fresh breeze, from SE with wind gusts of 10m/sec which were both outside the ideal conditions for noise monitoring.

- 4.3. Measurement of the north facade overlooking the railway gave:

Daytime LAeq, 16 hr = 61dB  
Night-time LAeq, 8 hr = 56dB  
(No significant night time peak events)

- 4.4. The measurement location N1, is some 8m from the boundary and about 13m from the centre of the nearside railway track. We are advised that the proposed development is planned to arise within 4.5m of the north boundary. We should increase the measured noise levels by about 2dB to allow for the increase arising from closer proximity to the boundary and therefore the railway. We should also allow an increase of at least 5dB to offset the screening effect that arises from the ship containers.

Corrected Daytime LAeq, 16 hr = 68 dB  
Corrected Night-time LAeq, 8 hr = 63 dB

- 4.5. PPG24 evaluates a site for suitability for new dwellings near existing noise sources in terms of three parameters – the  $L_{Aeq,16-hour}$  for the daytime period from 07:00 to 23:00, the  $L_{Aeq,8-hour}$  for the night-time period from 23:00 to 07:00, and the occurrence of peaks in terms of  $L_{ASMax}$  for the night-time period.
- 4.6. PPG24 describes a site in terms of one of four Noise Exposure Categories (NEC) – A to D. Table A shows the noise levels which correspond to each category with an explanation given by PPG24. The levels in the table correspond to free-field measurement locations and a predominantly rail noise source.

## CIVIL ENGINEERING DYNAMICS

4.7. Table A: Noise Exposure Categories.

Noise Exposure Category (NEC)	Noise Level $L_{Aeq,T}$ (dBA)		Guidance from PPG24
	07:00 – 23:00	23:00 – 07:00	
<b>A</b>	< 55	< 45	Noise need not be considered as a determining factor in granting planning permission, although the noise level at the high end of the category should not be regarded as desirable level.
<b>B</b>	55 – 66	45 – 59	Noise should be taken into account when determining planning applications and, where appropriate, conditions imposed to ensure an adequate level of protection against noise.
<b>C</b>	66 – 74	59 – 66	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.
<b>D</b>	>74	> 66	Planning permission should normally be refused.

4.8. In this case the corrected 'free-field' daytime and night-time noise levels are:

- Daytime (07:00 to 23:00)       $L_{Aeq,16hours}$       = 68 dBA
- Night-time (23:00 to 07:00)       $L_{Aeq,8hours}$       = 63 dBA

This puts the site into Noise Exposure Category C, after offsetting the screening effect of the ship containers.

4.9. PPG24 states the following additional criteria:

'Night-time noise levels (23:00 – 07:00): sites where individual noise events regularly exceed 82 dB  $L_{Amax}$  (S time weighting) several times in any hour should be treated as NEC C, regardless of the  $L_{Aeq,8hours}$ .'

Whilst the noise samples at N1 did not regularly exceed the above values, after allowing for the correction for distance and noise screening from the ship containers, noise events could exceed the above value. However based upon this night time noise sample, such peak events did not occur with sufficient regularity to warrant a specific NEC category C rating.

The rail events during the day did include many frequent uses of the train horn, although workmen on the track were visible at times. It may be that the frequent use of the train horns was untypical during the survey due to local engineering works on the track. Extended evaluation would be required to consider this aspect in detail design.