



Report Reference: N&V-R2812

NOISE INVESTIGATION AT 


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1. COMPLAINT DETAILS

Complaint ref.	[REDACTED]		
Property location	Northern Line – Waterloo to Kennington (see Figure 1)	LCS Codes	N116/NSBLO 1445m

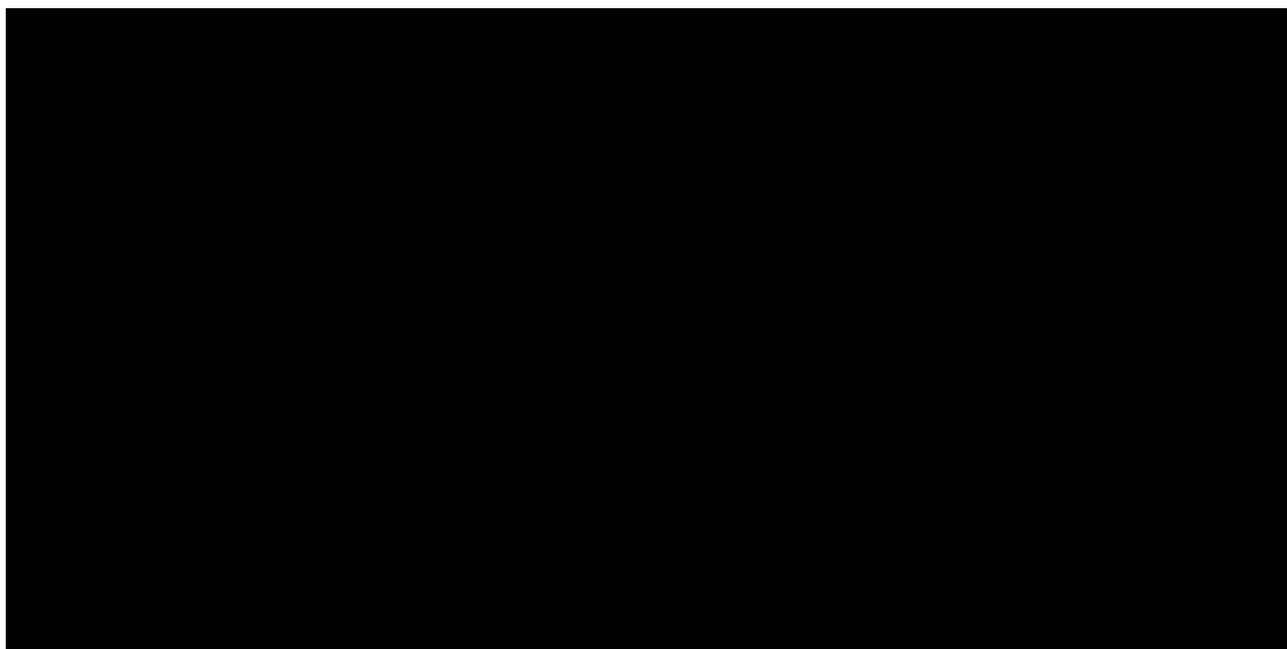


Figure 1 - Location of the property in relation to the Northern line.

The resident contacted TfL on April 2020, reporting a gradual increase in noise levels. The resident has lived in the property [REDACTED].

The current set of noise measurements was undertaken to assess any possible evolution of levels.

2. MEASUREMENT DETAILS

Date of measurement	16 th July 2020
Measurement location	3 rd floor living room
Equipment used	01dB dB4 system for data acquisition SN. 1C15617

3. RESULTS OF NOISE MEASUREMENTS – (L_{AMAX, FAST}) dB(A)

Northbound				Southbound				Background (L _{A90})
No. of Trains	Min.	Max.	Mean	No. of Trains	Min.	Max.	Mean	
Not noticeable				11	38	41	40	27

4. OBSERVATIONS

Within the property, only southbound trains were noticed, and this can be attributed to the fact that the southbound tunnel runs underneath the property, whereas the northbound tunnel, runs roughly 140m to the west. The perceived character of the train noise was a rumble, indicative of the presence of rail roughness.

It is worth noting, that previous measurements had been undertaken in nearby properties. In 2013 and 2016, noise levels taken within a ground floor living room, averaged 40 and 39dB(A), measured in terms of L_{Amax, FAST}.

Generally, groundborne noise within upper floors, is lower than those measured within lower floors. As such, it could be assumed that noise levels on the ground floor are likely higher than those on the third floor.



Nevertheless, this supposition requires corroboration, as some buildings with quite specific types of construction have vibration levels significantly amplified due to floors' and other structural components' resonances, and as such vibration and radiated noise levels are similar from the ground floor to the upper floor.

Axle box vibration levels taken from an ATMS run on the Northern Line, in December 2019, show that the levels on the southbound road near the property, are increased, validating the presumption of increased rail roughness levels.

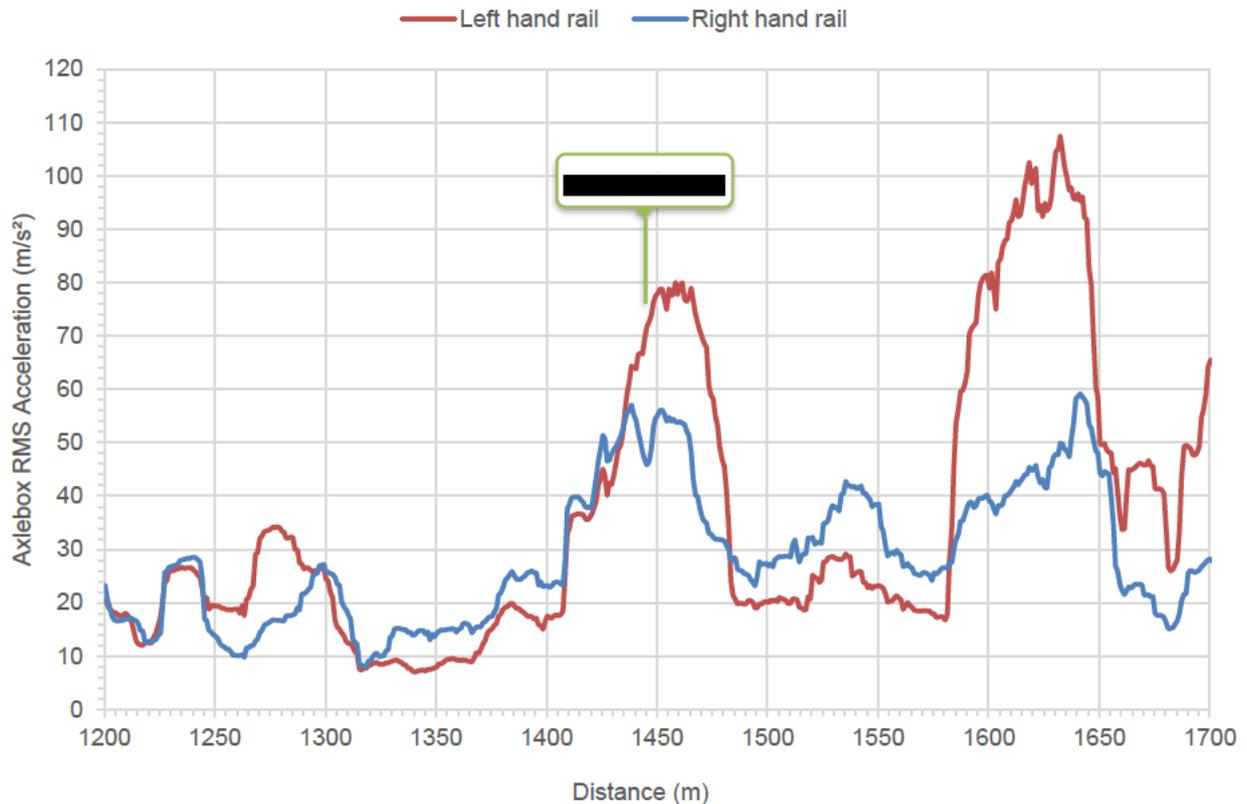


Figure 2 - Train axle box vibration on the SB road measured on an ATMS run: December 2019

Rail roughness data should allow a better understanding of the current condition of the southbound track, and therefore, measurements with a Corrugation Analysis Trolley (CAT) are recommended.