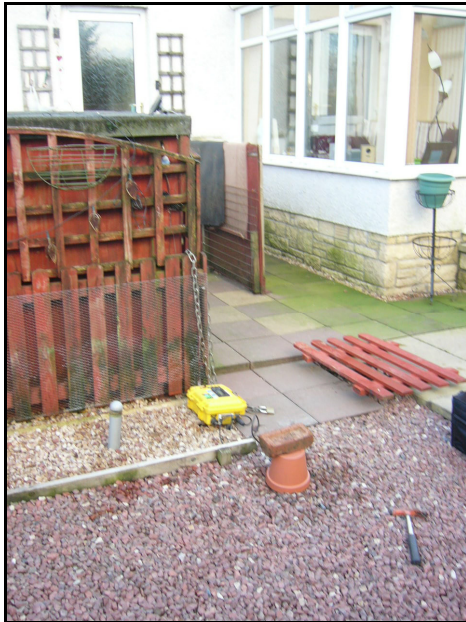
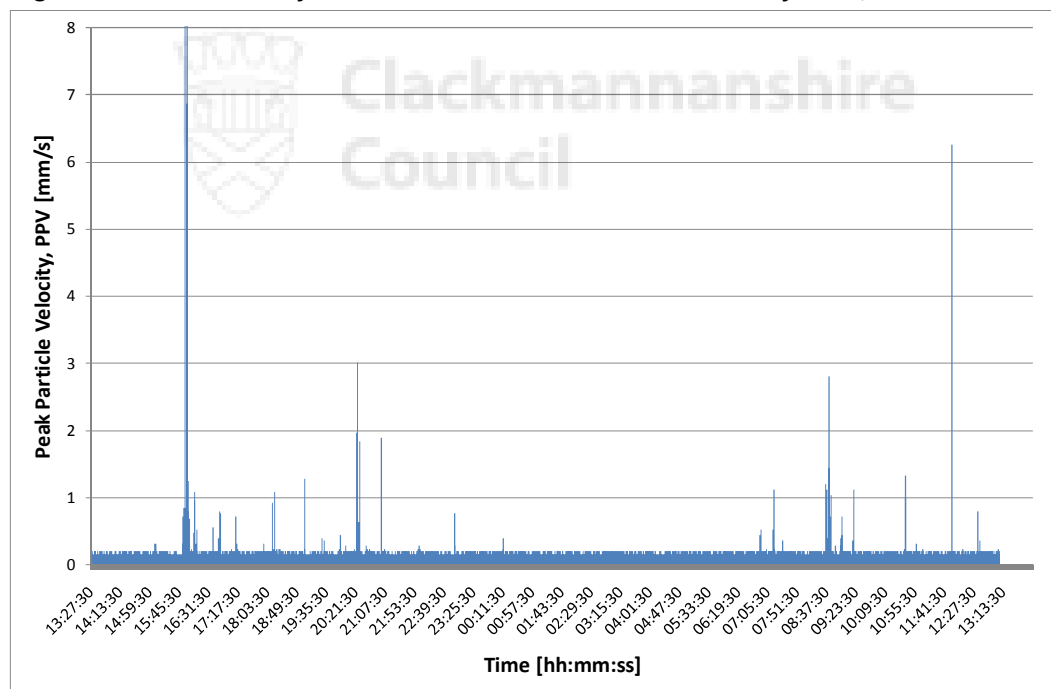


**Figure 5.27: Photograph of Vibration Monitoring Equipment at 30 Ladywood, Clackmannan**



- 5.57 The weather conditions during the measurement period are believed to have been generally dry with very light winds. There may have been a light ground frost during the night.
- 5.58 Figure 5.28 shows the time history of the measured PPVs. The spacing and relative magnitude of the most significant peaks suggest these were not caused by rail traffic. The highest levels are not consistent with a distance of 36 m to the railway. Levels at 20 Ladywood, at 41 m from the railway, are orders of magnitude lower. It is therefore reasonable to conclude that the significant levels were caused by spurious events such as the attention of children, household pets or tampering. This means that the data is inconclusive.

**Figure 5.28: Time History of 30 second PPVs Measured at 30 Ladywood, Clackmannan**



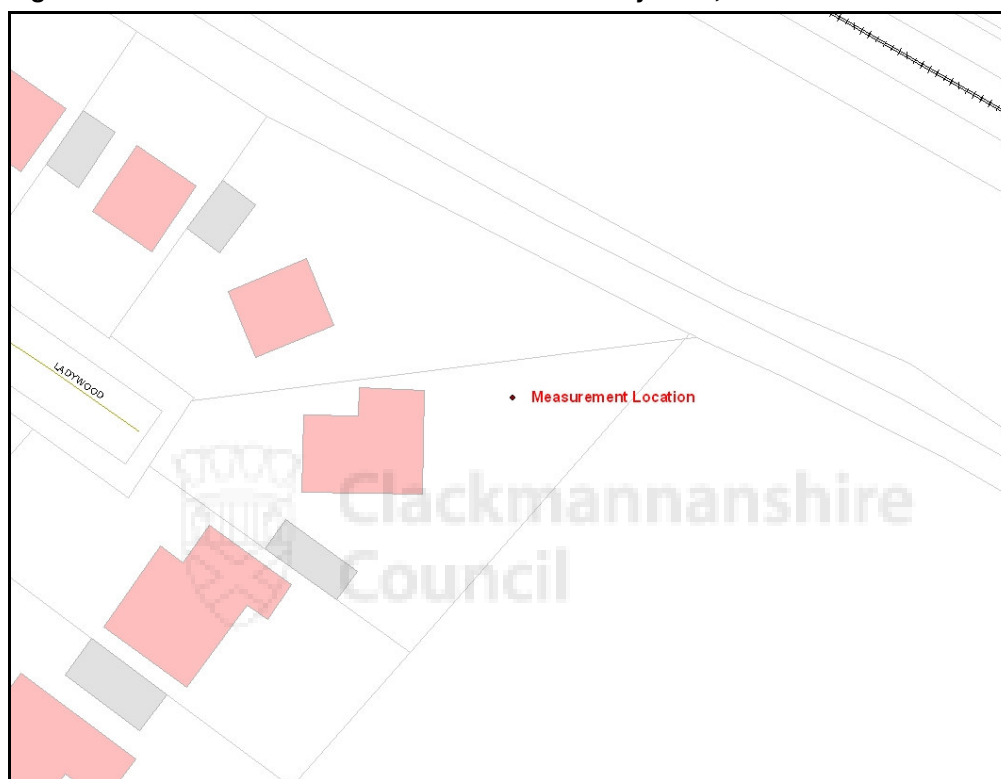
5.59 The dataset, which is contaminated by spurious events, provides no reliable indication of the PPV from train pass-bys. Vibration from train events can therefore not be assessed with respect to the criteria. Some indication of the likelihood of excessive levels is however provided by the dataset for 20 Ladywood, which shows PPVs below 0.5 mm/s. The risk of adverse structural effects due to vibration is therefore remote.

### 20 Ladywood, Clackmannan, Clackmannanshire

5.60 Continuously logged measurements were made from 11:28 on 22 November 2010 until 11:30 on 23 November 2010.

5.61 Ladywood is a cul-de-sac located off Alloa Road and is therefore unlikely to be heavily trafficked. The SAK line, which is likely to dominate the local vibration climate, is elevated approximately 0.5-1 m above the ground height at the dwelling. Figure 5.29 illustrates the measurement location in relation to the surrounding area of the property.

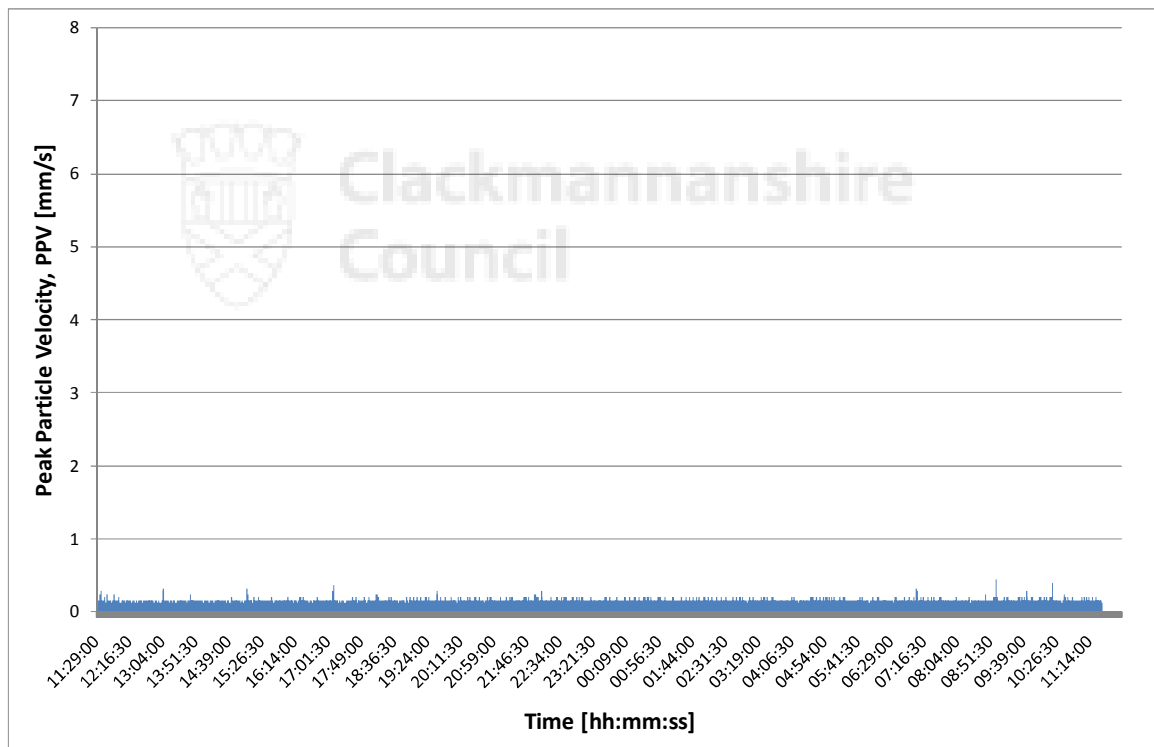
**Figure 5.29: Plan of Measurement Location at 20 Ladywood, Clackmannan**



5.62 The measurement equipment was located approximately 41 m to the south of the nearside of the SAK railway track and approximately 7 m to the east of the facade of 20 Ladywood. Figure 5.30 illustrates.

**Figure 5.30: Photograph of Vibration Monitoring Equipment at 20 Ladywood, Clackmannan**

- 5.63 The weather conditions during the measurement period are believed to have been generally dry with a fresh breeze. During the night-time period it is possible that there was a light ground frost.
- 5.64 Figure 5.31 shows the time history of the measured PPVs. A series of peaks are seen to rise just above the noise floor of the measurement system. These slight increases in vibration are likely to represent the passage of freight trains.

**Figure 5.31: Time History of 30-Second PPVs Measured at 20 Ladywood, Clackmannan**

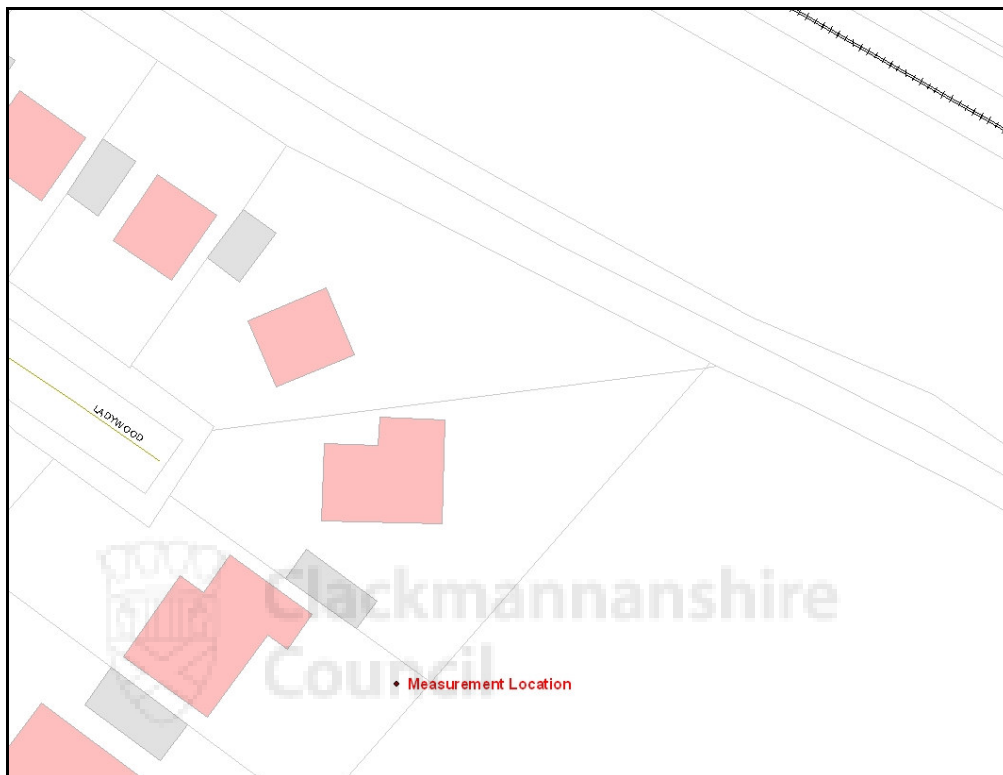
5.65 The highest measured PPV was  $0.442 \text{ mms}^{-1}$ . This level occurred between 08:59:00 and 08:59:30 on Tuesday 23<sup>rd</sup> November. It is likely that this level represents the passage of a freight train. This level is well below criteria.

### 18 Ladywood, Clackmannan, Clackmannanshire

5.66 Continuously logged measurements were made from 13:20 on 23 November 2010 until 13:52 on 24 November 2010.

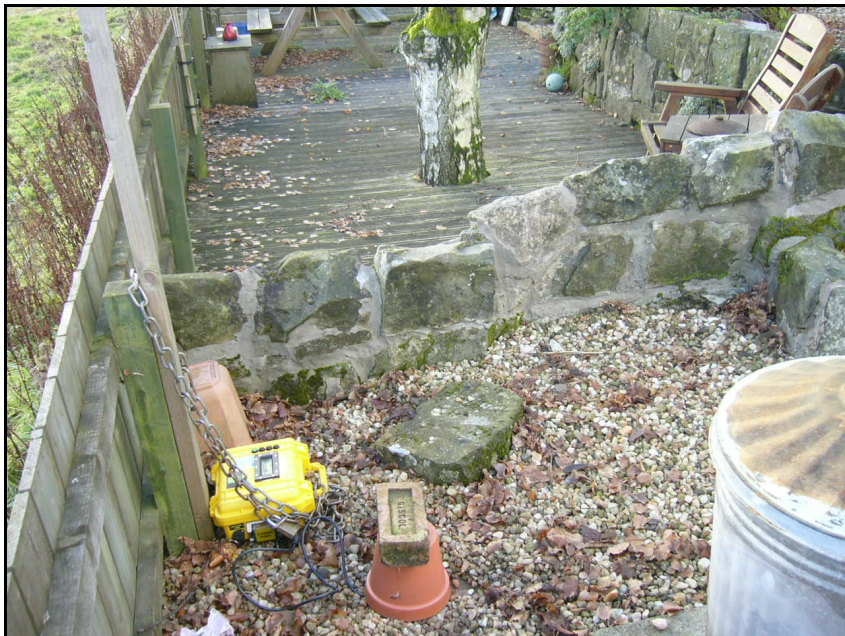
5.67 Ladywood is a cul-de-sac located off Alloa Road and is therefore unlikely to be heavily trafficked. The SAK line, which is likely to dominate the local vibration climate, is elevated approximately 0.5-1 m above the ground height at the dwelling. Figure 5.32 illustrates the measurement location in relation to the surrounding area.

**Figure 5.32: Plan of Measurement Location at 18 Ladywood, Clackmannan**



5.68 The measurement equipment was located approximately 65 m to the south of the nearside of the SAK railway track and approximately 9 m to the east of the facade of 18 Ladywood. Figure 5.34 illustrates.

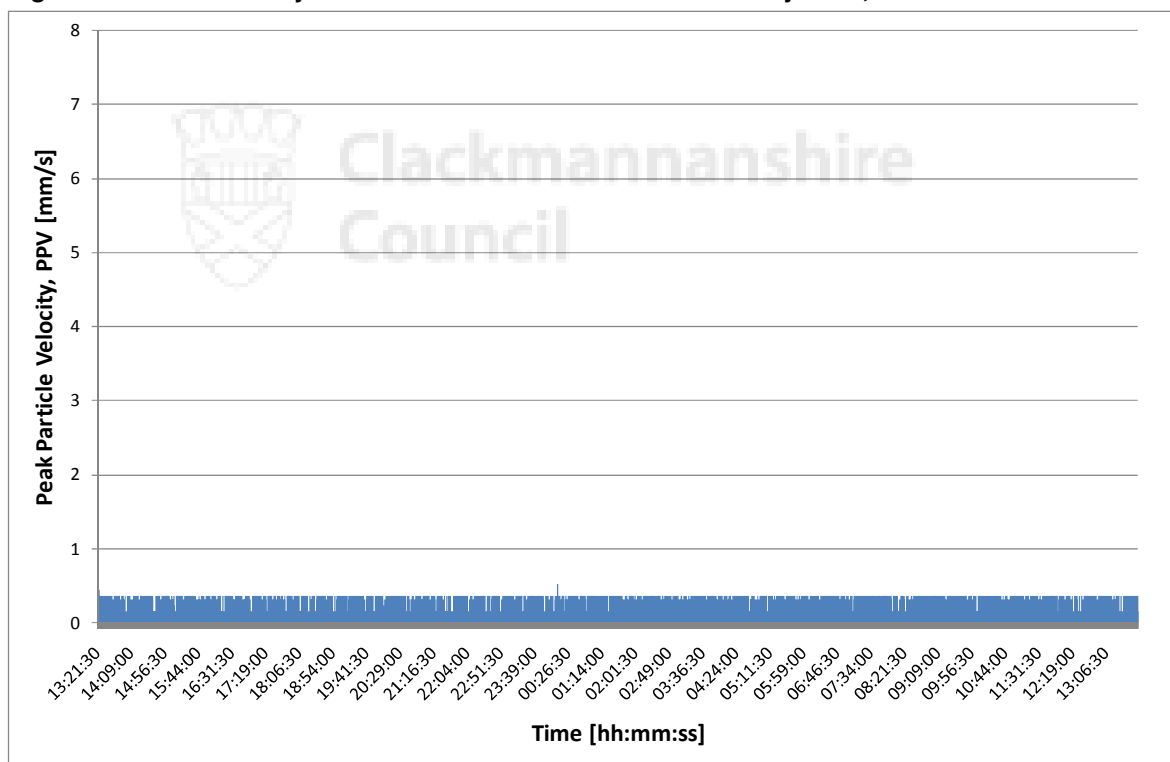
**Figure 5.34: Photograph of Vibration Monitoring Equipment at 18 Ladywood, Clackmannan**



5.69 The weather conditions during the measurement period are believed to have been generally dry with a fresh breeze. During the night-time period it is possible that there was a light ground frost.

5.70 Figure 5.35 shows the time history of the measured PPVs. One event can be seen to exceed the noise floor of the measurement system. There is no pattern of regular train pass-bys, so there is little to support the notion that this level is caused by trains. It is most likely a temporary increase in system noise floor.

**Figure 5.35: Time History of 30-Second PPVs Measured at 18 Ladywood, Clackmannan**

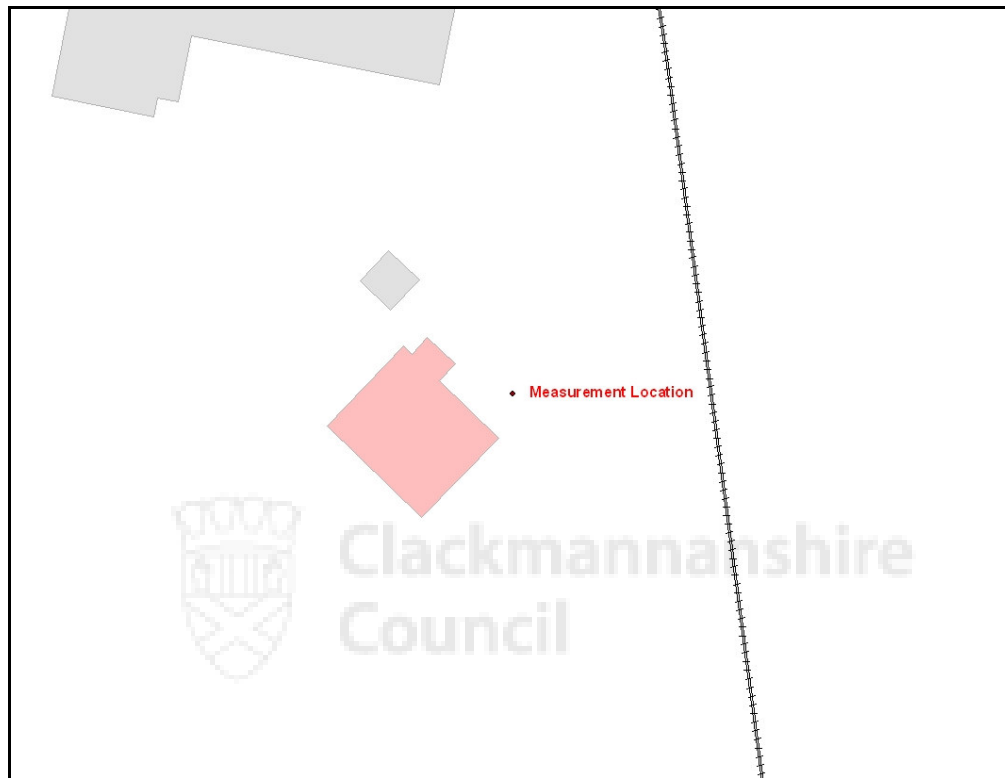


- 5.71 The highest measured PPV was 0.522 mm/s. This level occurred between 00:11:00 and 00:11:30 on Wednesday 24<sup>th</sup> November. This level, if caused by a train, would be well below the criteria. The possibility of structural damage of any kind is extremely remote.

#### **Bracken Brae, Kennet, Clackmannanshire**

- 5.72 Continuously logged measurements were made from 14:27 on 19 November 2010 until 10:58 on 22 November 2010.
- 5.73 Bracken Brae is located at the end of an access road which connects to the main road through Kennet. Network Rail has an access point to the railway line, south of Bracken Brae. Only traffic for the dwelling itself and Network Rail vehicles are believed to use the access road. The SAK line, which is likely to dominate the local vibration climate, is approximately 0.5-1 m above the ground height at the dwelling. Figure 5.36 illustrates the measurement location in relation to the surrounding area of the property.

**Figure 5.36: Plan of Measurement Location at Bracken Brae, Kennet**



- 5.74 The vibration transducer was located approximately 16 m to the west of the nearside of the SAK railway track and approximately 4 m to the north-west of the facade of Bracken Brae. Figure 5.37 illustrates.