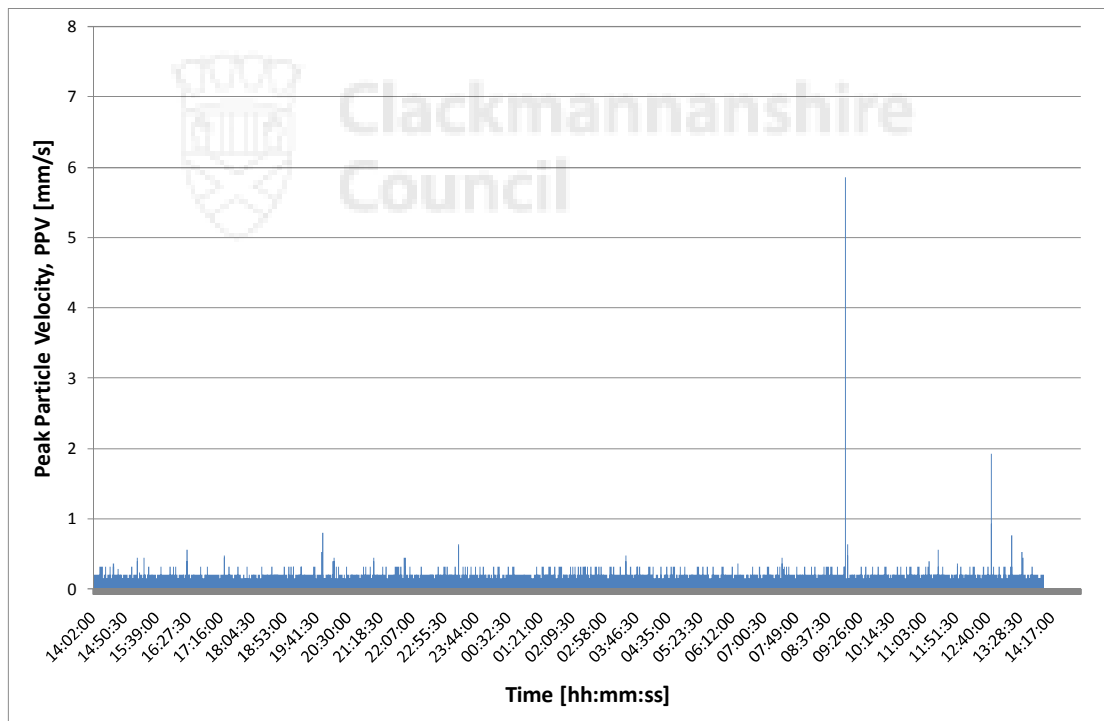


Figure 5.46: Photograph of Vibration Monitoring Equipment at 23 Ochil View, Kincardine

- 5.94 Winds of near gale force are likely to have occurred throughout the measurement period. There is unlikely to have been any precipitation.
- 5.95 Figure 5.47 shows the time history of the measured PPVs. Lower level peaks, around 0.5 mm/s, are likely to correspond with train movements. Two peaks can be seen to rise well above those of the train events. These are likely to be associated with occupant activities. For practical reasons, the measurement transducer was located near the garage of the dwelling, where this activity (e.g. closing of main doors) might have occurred.

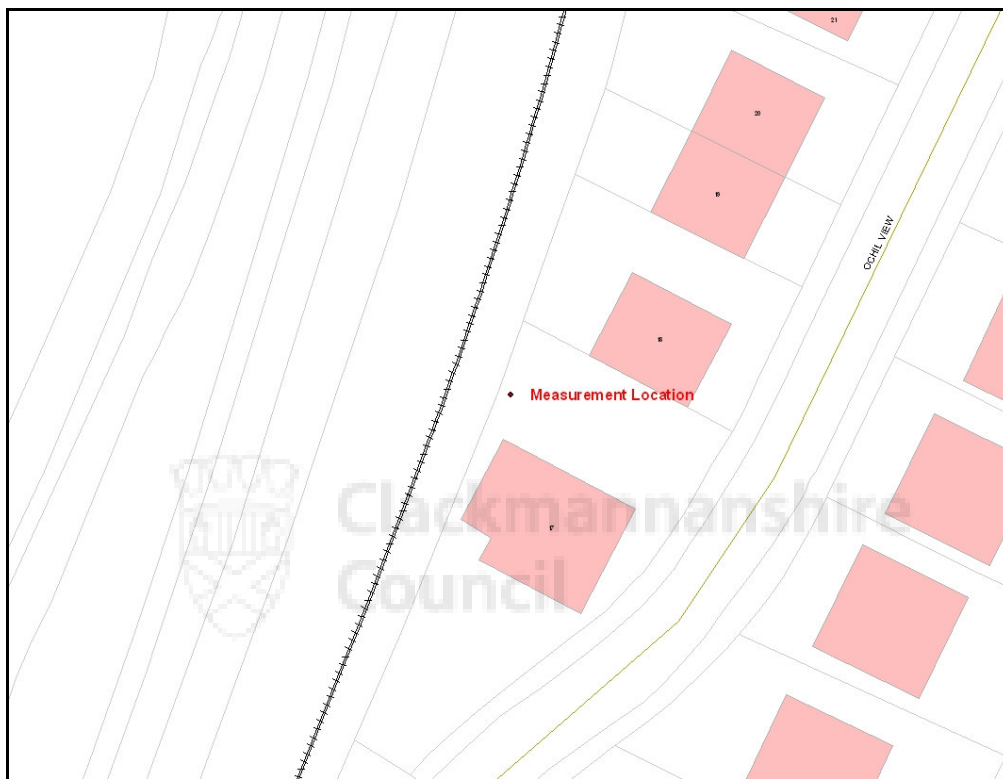
Figure 5.47: Time History of 30-Second PPVs Measured at 23 Ochil View, Kincardine

- 5.96 The highest measured PPV was 5.863 mm/s. This level occurred between 09:01:30 and 09:02:00 on Friday 19 November. As noted, this level is likely to be associated with occupant activity. The highest level likely to have resulted from a train pass-by is 0.803 mm/s. This occurred between 19:48:30 and 19:49:00 on the Friday. This level is well below the criteria and so is unlikely to give rise to structural damage of any kind.

17 Ochil View, Kincardine, Fife

- 5.97 Continuously logged measurements were made from 13:05 on 17th November 2010 until 13:37 on 18th November 2010.
- 5.98 Ochil View is a cul-de-sac located off Kilbagie Street, with low levels of local road traffic. The SAK railway line, to the west of the measurement location, is the only significant source of normally occurring environmental vibration in the area. Figure 5.48 illustrates the measurement location in relation to the surroundings.

Figure 5.48: Plan of Measurement Location at 17 Ochil View, Kincardine



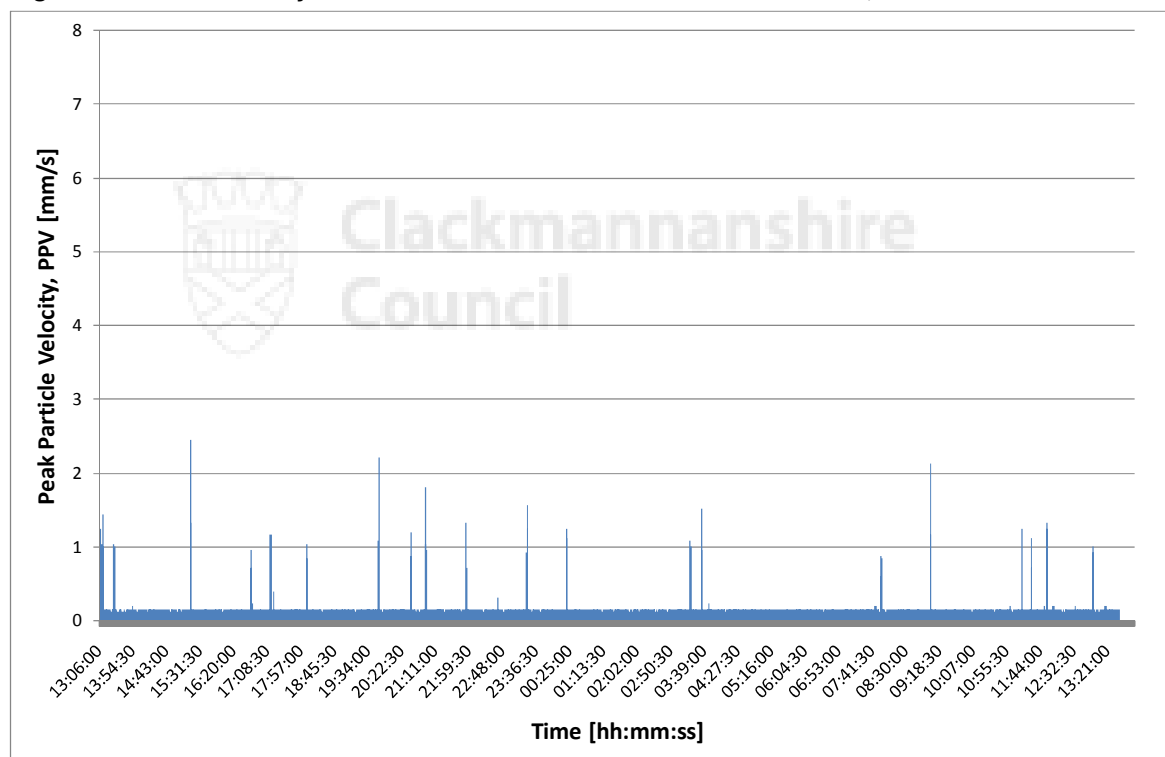
- 5.99 The measurement equipment was located approximately 5 m to the east of the nearside of the SAK railway track and approximately 4 m to the north of the facade of 17 Ochil View. Figure 5.49 illustrates.

Figure 5.49: Photograph of Vibration Monitoring Equipment at 17 Ochil View, Kincardine



- 5.100 Winds of near gale force are likely to have occurred throughout the measurement period. There is unlikely to have been any precipitation.
- 5.101 Figure 5.50 shows the time history of the measured PPVs. The visible peaks are entirely consistent with train movements, as evidenced by the other datasets.

Figure 5.50: Time History of 30-Second PPVs Measured at 17 Ochil View, Kincardine



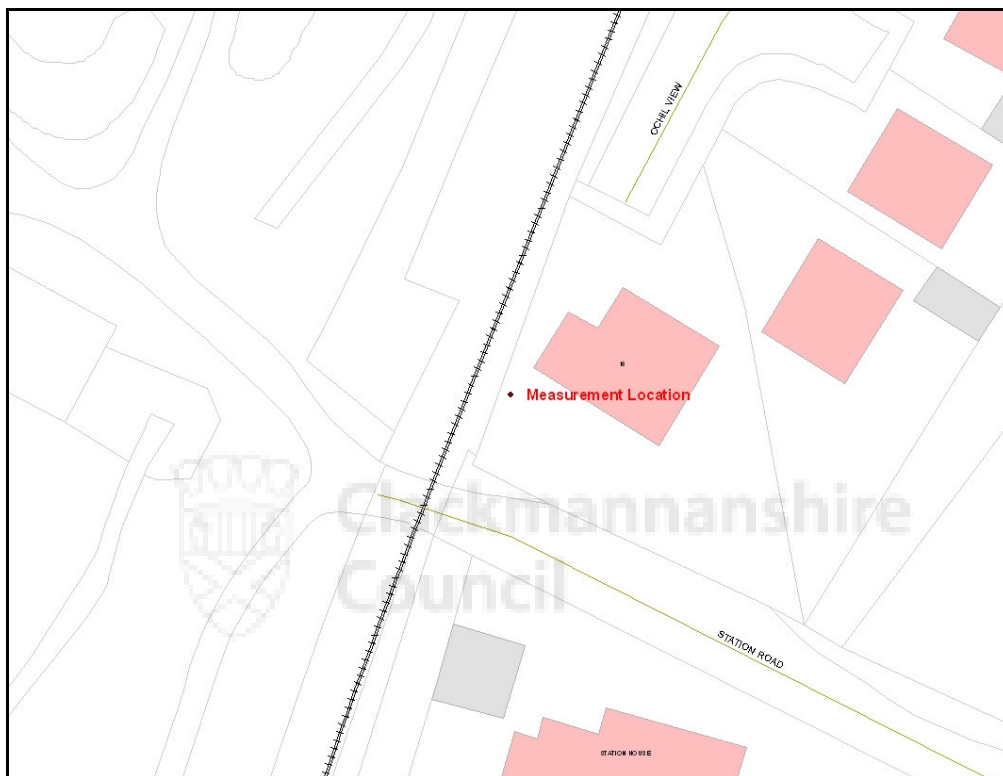
- 5.102 The highest measured PPV was 2.45 mm/s. This level occurred between 15:16:30 and 15:17:00 on Wednesday 17 November. Table 3 of this report gives the currently applicable UK criteria for vibration-

induced cosmetic damage to buildings. In the absence of frequency data, it should be conservatively assumed that PPVs should not exceed 15 mm/s. Taking into consideration the influence of dynamic magnification, 50% of this level, or 7.5 mm/s, might give rise to cosmetic damage in unreinforced or light framed structures such as dwellings. The measured value is less than a third of this..It is therefore unlikely to cause any structural damage..

16 Ochil View, Kincardine, Fife

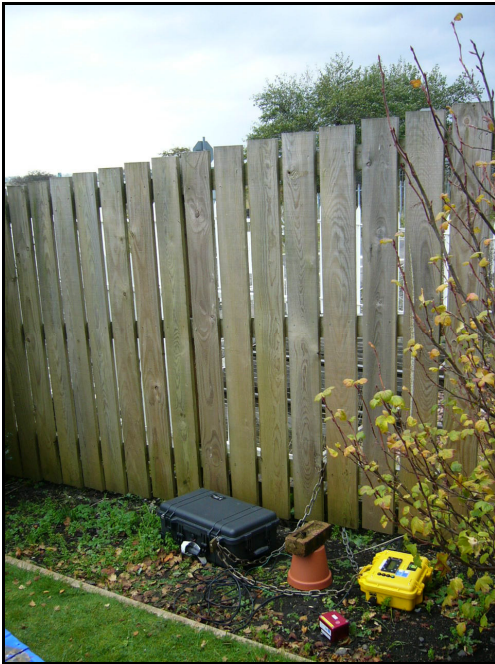
- 5.103 Continuously logged measurements were made from 12:22 on 17 November 2010 until 13:19 on 18 November 2010. During this period, the occupant is known to have been absent.
- 5.104 Ochil View is a cul-de-sac located off Kilbagie Street, with low levels of local road traffic. The SAK railway line, to the west of the measurement location, is the only significant source of normally occurring environmental vibration in the area. Figure 5.51 shows the measurement location in relation to the surroundings.

Figure 5.51: Plan of Measurement Location at 16 Ochil View, Kincardine



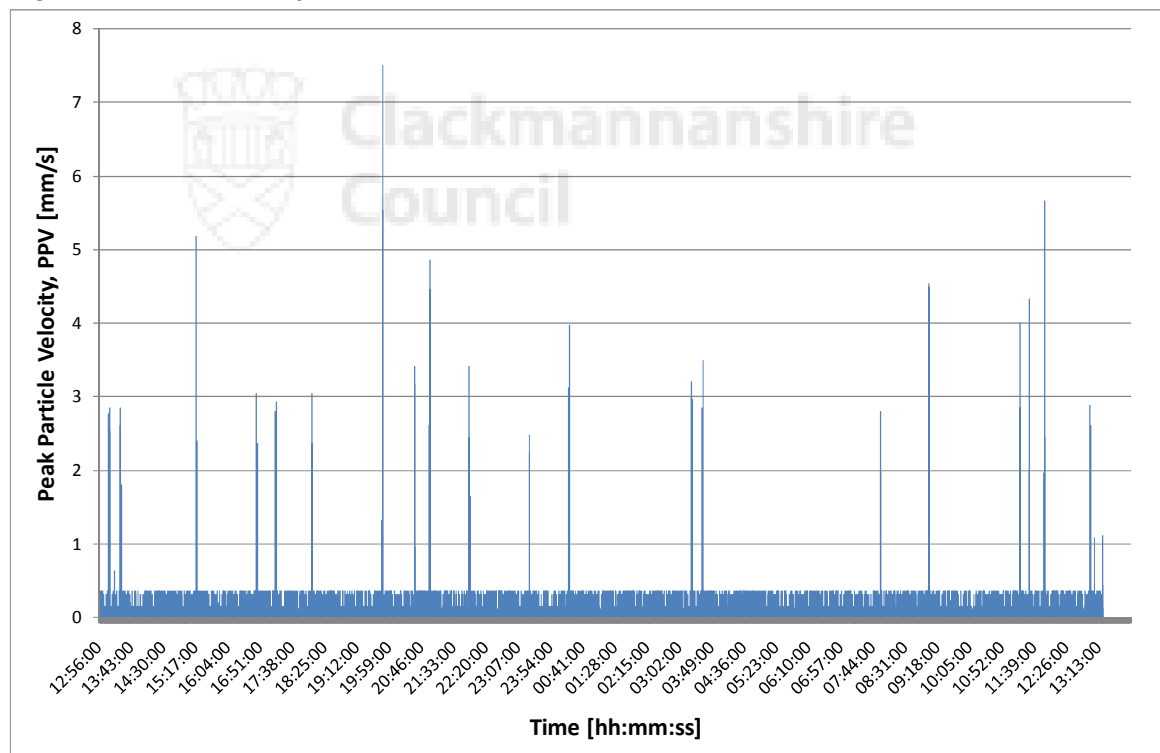
- 5.105 The measurement equipment was located approximately 3 m to the east of the nearside of the SAK railway track and approximately 3 m to the south of the facade of 16 Ochil View. Figure 5.52 illustrates.

Figure 5.52: Photograph of Vibration Monitoring Equipment at 16 Ochil View, Kincardine



- 5.106 Winds of near gale force are likely to have occurred throughout the measurement period. There is unlikely to have been any precipitation.
- 5.107 Figure 5.53 shows the time history of the measured PPVs. A series of 23 prominent peaks can be seen. Each of these is expected to correspond with a train pass-by. It can be assumed that at least 23 trains passed the site. There is no evidence of any other sources of vibration. Of all the measured data, this set provides the clearest and most unfettered insight into train-induced vibration.

Figure 5.53: Time History of 30-Second PPVs Measured at 16 Ochil View, Kincardine

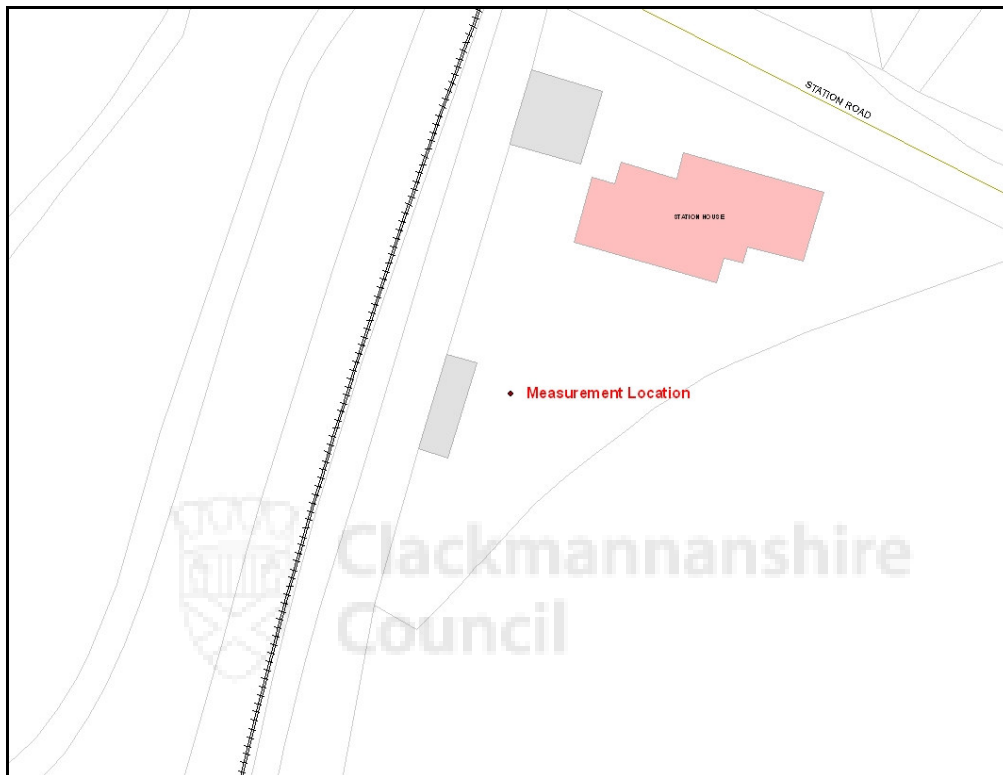


- 5.108 The highest measured PPV was 7.51 mm/s, which is unusually high. This level occurred between 19:48:00 and 19:48:30 on Wednesday 17th November. With reference to the discussion in 5.103, it is clear that train-induced vibration might give rise to cosmetic cracking. The risk of more severe ('minor' or 'major') structural damage is remote..

Station House, Station Road, Kincardine, Fife

- 5.109 Continuously logged measurements were made from 14:32 on 18 November 2010 until 14:46 on 19 November 2010.
- 5.110 Station House is located at the end of Station Road, adjacent to a level crossing. It is understood that road vehicle use of the level crossing (the junction between Station Road and the SAK line) is rare. The SAK railway line, to the west of the measurement location, is the only significant source of vibration in the area. Figure 5.54 shows the measurement location in relation to the surrounding area.

Figure 5.54: Plan of Measurement Location at Station House, Station Road, Kincardine



- 5.111 The measurement equipment was located approximately 13 m to the east of the nearside of the SAK railway track and approximately 14 m to the south of the facade of Station House. Figure 5.55 illustrates.