

Appendix C

Vibration Measurements of Truck Movements Conducted on 6th August 2010

Corrib Onshore Gas Pipeline - Vibration Measurements of Truck Movements Conducted on 6th August 2010 by RPS

Introduction

Vibration measurements were undertaken to record the levels of vibration due to movements of heavy goods vehicles on the L1202 and L1204 the proposed haul routes for the Corrib onshore pipeline. A HCV truck convoy comprising of 5 trucks laden with aggregate and a lead vehicle (safety jeep) representative of the typical truck convoy system that is proposed to be used during the construction phase of the proposed onshore pipeline was arranged to travel along the proposed haul route on the L1204 and the L1202 on the morning of 6th August 2010.

The vibration measurements were carried out between approximately 08:30 and 11:30 hours. It should be noted that during this period, the measurement locations were passed by other HCV vehicles, in addition to vans and cars from general traffic. These vehicles included general delivery vehicles, septic tank clearing vehicles, and skip trucks.

Some of these events were as follows:

- On L1202 there were at least two additional truck movements between 08:40 and 09:15 hours that were not associated with the arranged truck convoy.
- On the L1204 a truck stopped while the driver asked for directions

Vibration Measurement of Truck Movements

The following locations were selected as typical of different road conditions, sensitive receptors, and suitable for safe measurement:

- Location N5 was in front of the old cemetery at Pollatomish.
- Location N13 was in front of a house on the L1202
- Location N21 was at a farm gate on the L1204
- Location N23 was in front of a house on the L1204

In each case, vibration measurements were undertaken using two tri-axial accelerator arrays placed at the roadside, one approximately on the kerbside and one at a distance to represent the nearest façade of properties. In each case the roadside array was placed on the road or pavement tarmac with ground spikes pressed firmly into the surface. The second array was placed on a concrete block bedded into the ground, typically a gatepost footing.

The first set of vibration monitoring equipment was set to record acceleration in one-second intervals with the following measures:

- Peak
- P-P
- Max
- R.M.S.
- VDV

The second set of vibration equipment was set to record vibration velocity to enable the following to be obtained:

- Resultant PPV (Peak particle velocity) of the measurements in the 3 axes for events
- PPV time histories in vertical, parallel and radial directions

A sound level meter was also used to measure typical sound level at each measurement position.

At locations N13, N21 and N23, a measurement of typical background vibration was measured, in addition to two HCV truck convoy pass-bys. At each location the convoy pass-bys were used to record the measured signal for further analysis, should this be required.

At locations N5 and N13 one convoy pass-by was used to measure 1/3-octave frequency response. The 1/3-octave frequency response at these locations is considered to be representative of locations N21 and N23.

During the measurement survey, the measurement locations were passed by other HCV vehicles, in addition to vans and cars from general traffic. These vehicles included general delivery vehicles, septic tank clearing vehicles, and skip trucks.

The most significant vibration was measured when the driver of a HCV truck not associated with the arranged HCV convoy stopped to ask directions to its destination.

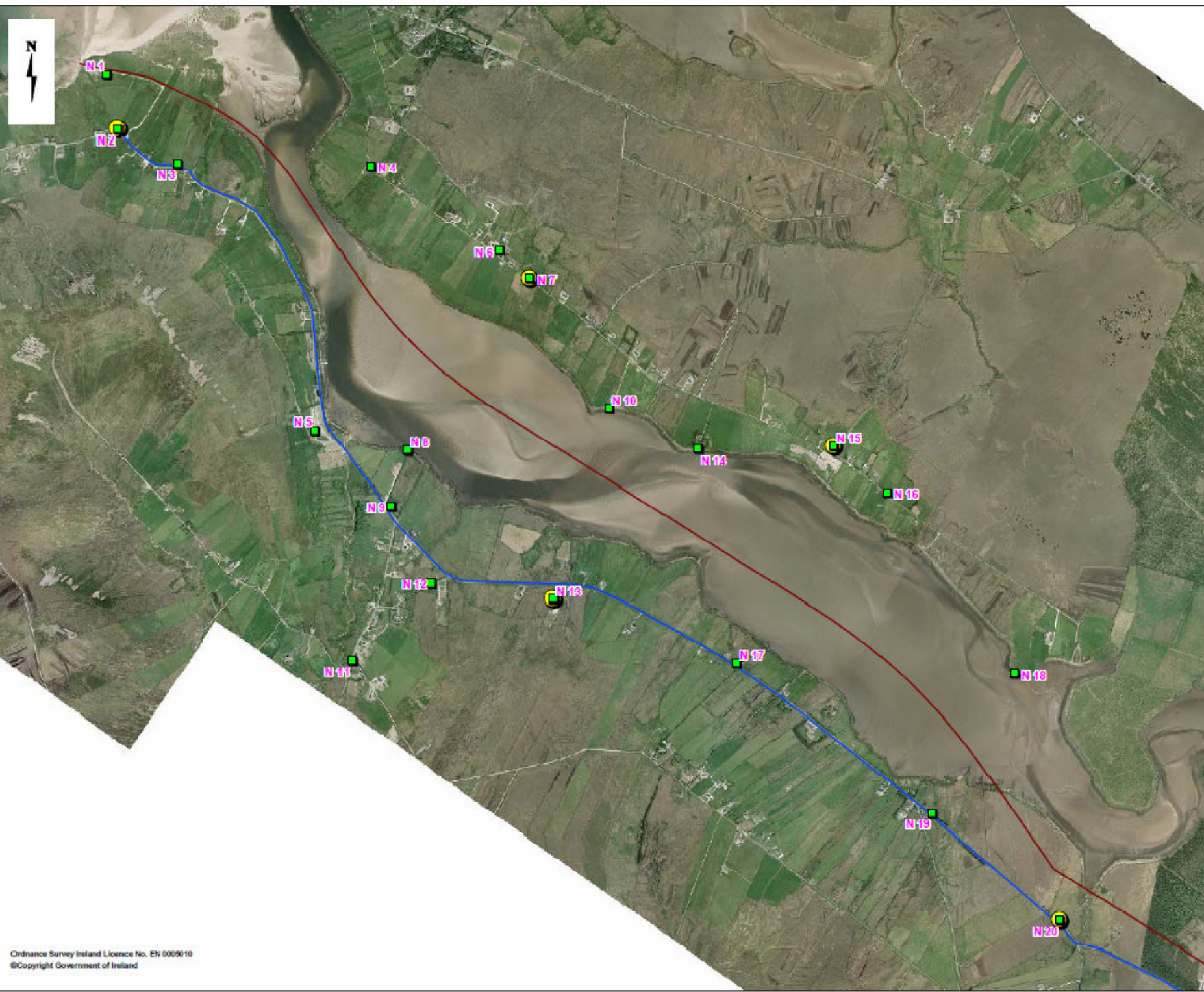
Vibration results - PPV

The vibration equipment gave the following vibration results (see Table 1) from various truck convoy and other vehicle pass-by events.

Table 1: Truck Convoy Vibration - PPV Measurement Results

| Location | Approximate Time | Distance from road (m) | PPV mm/s | Event measured |
|----------|------------------|------------------------|----------|-------------------------------------|
| N5 | 08:38 | 3 | 0.17 | Truck Passing + 1x jeep + 1x car |
| N5 | 08:41 | 3 | 0.38 | Truck convoy |
| N13 | -- | 6.5 | 0.022 | Single truck |
| N21 | 10:07 | 5.8 | 0.16 | Truck convoy |
| N21 | -- | 5.8 | 0.22 | Background - no vehicles identified |
| N23 | 10:51 | 4.8 | 0.14 | Truck convoy |
| N23 | -- | 4.8 | 0.072 | 2 cars |
| N23 | 11:15 | 4.8 | 0.23 | Truck convoy |

These results show that for the closest houses, typical truck convoy pass-bys are in the range 0.14 to 0.38 mm/s (PPV).



- Proposed Pipeline Route
- Proposed Haul Route
- Noise Monitoring Location
- 24 hr Noise Monitoring Location

Noise Monitoring Locations

Figure 9.1b

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