

KILSBY TUNNEL MOVING MODEL TESTS - INVESTIGATING THE EFFECTS OF AIR SHAFTS ON PRESSURE TRANSIENTS

The aerodynamics unit of British Rail Research has a unique moving model facility that enables studies of transient effects to be performed at model scale. This report describes tests performed on the moving model facility using a model of Kilsby Tunnel to investigate the effectiveness of fitting air shafts. The results demonstrate that, with a single train moving, regularly spaced air shafts can reduce the ground based peak pressure changes by up to 48% and, in the case tested, train-borne pressures by up to 38%. With two trains (or more) it is found that the pressure wave superpositions are highly complex, and that the rig tests cannot provide, on their own enough tunnel and train configurations to provide detailed guidance. However results from these tests are used to validate and tune computer simulations.