

## THE EFFECT OF LATERAL LOADS ON TRACK MOVEMENT

Although there were many studies of continuously welded rail on ballasted track previous to this report, the use of this form of track rested more on the experience of its use and empirical knowledge than on a full theoretical understanding. In the light of increasing interest in the operation of high speed trains on welded track, and especially the use of trains with tilting bodies running at high cant deficiencies, a review of the situation was undertaken to see whether any new problems may be encountered.

This report reviews existing experimental data on the resistance of track to lateral forces and explores theoretical analyses for the buckling of track in hot weather due to sinusoidal misalignments. Further theoretical analyses are then described, giving the lateral bending response of the track to moving and oscillatory forces in which torsion of the track is neglected. An approximate analysis of the response of the track to a wheelset traversing a sinusoidal misalignment is given in which torsion of the rail is represented by a lateral flexibility immediately below the wheel/rail contact. The report describes briefly the ongoing work involving measurements of forces and displacements experienced by the track in service.