ABSTRACT

Analysis of vibrations produced by explosives for the excavation of urban tunnels

In this tesina a revision of the different aspects is done that have to see with the broadcast of vibrations caused by explosives, particularly them carried out in the excavation of urban tunnels.

The tesina is divided into two blocks well differentiated. A first part in which the theoretical aspects of the theme are revised, including the parameters of the seismic waves; a classification of the same; what parameters are the most influential in the broadcast of vibrations; What aspects should be should keep in mind at the moment of to carry out a vibrations measure campaign; which are the existing regulations in vigor and how to apply them and what damages prevention criteria exist on the structures and on the persons. In a second splits are explained all the aspects related to the construction of the line, as for studies on the land carried out, geological framework, social aspects, methods of execution, cycles of work, teams of measure, registration and analysis of the data.

The second splits is bases on the seismic registrations obtained during the execution of the necessary explosives for the execution of the work. The analysis of the joint data and for each one of the cuts is contemplated by separated, contemplating variables as are the geology of the front in the explosive, the relative location of the sismógraphs with respect to the explosive as for position and as for litologies, geometry of the plan of shot, analysis of performance of different systems of initiation, comparison among the vibrations transmitted in a study of vibrations and them transmitted by the explosives of production.

The objective is to verify which are the most influential aspects in the broadcast of vibrations in an urban environment, with the determining factors that this implies, in order to extracting some recommendations of action in similar cases.