

## INSTRUMENTED TEST SECTION FOR THE EVALUATION OF GEOGRIDS IN ASPHALT PAVEMENTS

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### *ABSTRACT*

The evaluation of geogrid reinforcement for asphalt pavement rehabilitation is a complex task where considerable research is needed. An instrumented flexible pavement test section was constructed along an in-service road in Ancona (Italy) to study the effectiveness of geogrid reinforcement in terms of stress-strain response and pavement performance. The instrumented pavement is part of a larger project that also involves a RILEM inter-laboratory test of geogrids in asphalt pavements. A glass fiber grid and a carbon fiber grid were installed at the interface between two asphalt layers. An unreinforced section with a traditional tack-coat interface was constructed for reference. Moreover, areas with artificial cracks and partial debonding were prepared in the lower asphalt layer to simulate challenging situations frequently encountered in practical rehabilitation projects. The three test section were instrumented with pressure cells, asphalt strain gauges and temperature sensors. This paper describes the site preparation and the test sections construction phases, with particular emphasis to the instrumentation and the data acquisition set-up. FWD and full-scale tests were performed on the newly constructed pavement. Results show the effects of geogrid reinforcement on the pavement response both in terms of surface deflection and stress-strain response. They will be the benchmark for the planned long-term monitoring of the test sections.

**KEY WORDS:** Rehabilitation, geogrid reinforcement, instrumentation, pressure cell, asphalt strain gauges.