

투수성 포장과 배수성 포장 구조형식의 성능평가 및 비교 연구

A Study on the Performance Evaluation and Comparison of Porous and Drainage Pavement Types

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ABSTRACT

PURPOSES : The permeable pavement type has been rapidly developed for solving problems regarding traffic noise in the area of housing complex and heavy rainwater drainage in order to account for the climate change. In this regards, the objective of this study is to figure out the characteristics of pavement types.

METHODS : The laboratory test for deriving optimum asphalt content (OAC) was conducted using the mixtures of the permeable asphalt surface for the pavement surface from Marshall compaction method. Based on its results, the pavement construction at the test field was conducted. After that, the site performance tests for measuring the traffic noise, strength and permeability were carried out for the relative evaluation in 2 months after the traffic opening. The specific site tests are noble close proximity method (NCPX), Light falling deflectometer test (LFWD) and the compact permeability test.

RESULTS : The ordered highest values of the traffic noise level can be found such as normal dense graded asphalt, drainage and porous structure types. In the results from LFWD, the strength values of the porous and drainage asphalt types had been lower, but the strength of normal asphalt structure had relatively stayed high.

CONCLUSIONS : The porous structure has been shown to perform significantly better in permeability and noise reduction than others. In addition to this study, the evaluation of the properties and the determination of the optimum thickness for the subgrade course under the porous pavement will be conducted using ground investigation technique in the further research.

Keywords

Permeable Pavement, Porous Pavement, Drainage Pavement, Impermeable Pavement, Noble Close ProXimity (NCPX), Light Falling Weight Deflectometer (LFWD), Optimum Asphalt Content (OAC)

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1. 서론

최근 한국에서는 급격한 기상이변 현상과 관련하여

폭우 및 국지성 호우로 인해 도로가 침수하는 등의 문제가 발생하고 있다. 도로내에서 우수를 적절하게 처리하