

Numerical Modeling Analysis for the Double-Layered Asphalt Pavement Structure Behavior with Interface Bonding

Authors : Minh Tu Le, Quang Huy Nguyen, Mai Lan Nguyen

Abstract : Bonding characteristics between pavement layers have an important influence on responses of pavement structures. This paper deals with analytical solution for the stresses, strains, and deflections of double-layered asphalt pavement structure. This solution is based on the homogeneous half-space of layered theory developed by Burmister (1943). The partial interaction between the layers is taken into account by considering an interface bonding behavior which is obtained by push-out shear test. Numerical applications considering three cases of bonding (unbonded, partially bonded, and fully bonded overlays) are carried out to the influence of the interface bonding on the structural behavior of asphalt pavement under static loading. Further, it was observed that numerical results indicate that the horizontal shear reaction modulus at the interface (K_s) will significantly affect pavement structure behavior.

Keywords : analytical solution, interface bonding, shear test keyword, double-layered asphalt, shear reaction modulus

Conference Title : ICCEABME 2018 : International Conference on Civil Engineering, Architecture, Building Materials and Environment

Conference Location : Paris, France

Conference Dates : March 15-16, 2018