A Geographically Weighted Regression Kriging Approach for Mapping Swelling Potential of Garinono Formation Soil

ABSTRACT

The Beluran-Telupid road is notoriously known for its deterioration which sits on Garinono Formation soil and is rich with argillaceous melange. This contributed to inconvenience to motorists apart from being perilous when the subgrade of the road starts to degrade. A geographically weighted regression kriging was conducted along the road based on 25 samples to generate a swelling potential map. The results from the samples have reaffirmed the argillaceous nature of the soil due to the high composition of fine grains mainly clay, especially at the midsection. Nevertheless, after computation, most of the soils have medium swelling potential. After geographically weighted regression kriging was conducted, certain areas are defined as areas which have high swelling potential. Methodologies in this study increase the chances to validate swelling potentials and reduce the gap which is missing in the construction industry involving public road and geotechnical projects.