

**SOIL PHYSICAL PROPERTIES AS THE BASIS OF GROUND  
MOVEMENT MITIGATION IN SIDOREJO VILLAGE GODEAN  
DISTRICT SLEMAN REGENCY SPECIAL REGION OF YOGYAKARTA**

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**ABSTRACT**

Vulnerability of ground movements increases in line with a decrease in soil stability that was influenced by some physical properties of the soil. The availability of complete and accurate information regarding areas that were prone to ground movement was very important considering the many impacts that may be caused by ground movement. This research aims to create a map of potential ground movement vulnerability and examine the relationship between soil physical properties with the potential for ground movement as a basis for disaster mitigation. The research was carried out in Sidorejo Village Godean District Sleman Regency, which has 544 ha of areas. The method used in this research was a survey method and the method of estimating the vulnerability of ground movement that refers to Puslittanak (2004). Determination of sample points used a purposive sampling method based on a grid system, there are 20 sample points. Analysis of the factors that influence the occurrence of ground movement was limited to the parameters of the physical properties of the soil, which were Atterberg limits (liquid limit, plastic limit, plasticity index), soil texture, permeability, bulk density, and porosity. The results of mapping the potential for the vulnerability of the ground movement in Sidorejo Village were obtained four classifications of vulnerability, those were 12,561 ha (2,31%) of low potential, 179,531 ha (33,01%) of medium potential, 341,367 ha (62,77%) of high potential, and 10,400 ha (1,91%) of very high potential. The results of the laboratory test showed that the soil physical properties that influence the vulnerability of ground movement are liquid limit, plastic limit, plasticity index, texture, bulk density, and soil permeability, while soil porosity has no influence.

*Keywords: ground movement, mitigation, soil physical properties, vulnerability*