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论文

挡土墙填土边坡水文响应过程分析——以赖屋山挡土墙填土边坡为例

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摘要：

深圳赖屋山的一挡墙表面出现数条裂缝,为了深入研究其变形破坏机制,在挡墙背后填土区布置自动监测仪器,主要包括渗压计、张力计与水分计及固定式测斜仪。通过对渗压计、张力计和水分计的监测数据分析表明：填土内地下水位埋深大,降雨对其影响小； 土体中孔隙压力和体积含水量对强降雨响应随着埋深存在不同程度的滞后性,强降雨入渗深度大于3m,并且在3m处形成瞬态饱和地下水,抗剪强度降低,易于引起边坡的浅层变形破坏。

关键词： 填土边坡,挡土墙,降雨入渗,孔隙压力,体积含水量,地下水位

HYDROLOGICAL RESPONSE TO RAINFALL INFILTRATION OF BACK FILLED RETAINING WALL：A CASE FROM LAIWUSHAN BACK FILLED RETAINING WALL

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Abstract:

Several cracks were found to occur on the slope

face of the Laiwushan retaining wall. In order to understand the mechanism of deformation and failure mechanism,automatic monitoring instruments,including piezometers,tensiometers,moisture probes and in place inclinometers were installed at the top of fill slope. The following findings can be observed based on the monitoring data of piezometers,moisture probes and tensiometers: rainfall infiltration has little influence on the fluctuation of the groundwater table,possibly because the groundwater table was deep； the response of pore pressure and volumetric water content at various depths in the fill was delayed,depending on the soil depth. The rainwater can infiltrate into a depth of over 3m,and a perched water table can be observed at the depth of 3m,resulting in reduction in shear strength of soil and potential shallow failure.

Keywords: Fill slope Retaining wall Rainfall infiltration Pore pressure Volumetric water content Groundwater

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