

Hydraulic Performance of Urban Drainage System Using SWMM: A Case Study of Siti Khadijah Retention Pond in Palembang City

Authors : Muhammad B. Al Amin, Nyimas S. Rika, Dwi F. Yanto, Marcelina

Abstract : Siti Khadijah retention pond is located beside of Siti Khadijah Islamic Hospital on Demang Lebar Daun Street in Palembang City. This retention pond is functioned as storage for runoff from drainage channels in the surrounding area before entering Sekanak River, which is one of Musi River tributaries. However, in recent years, the developments in the surrounding area into paved area trigger to increase runoff discharge that causes the pond can no longer store it adequately. This study aimed to investigate the hydraulic performance of drainage system in the area around Siti Khadijah retention pond. A SWMM model was used to simulate runoff discharge into the pond and out from the pond, so the water level fluctuation within the pond and its capacity could be determined. Besides that, the water depth within drainage channels was simulated as well. The results showed that capacity of retention pond and some drainage channels already inadequate, so the area around it potentially to be flooded. Thus, it is necessary to increase the capacity of the retention pond and drainage channels.

Keywords : flood, retention pond, SWMM, urban drainage system

Conference Title : ICWES 2016 : International Conference on Water and Environmental Sciences

Conference Location : Kuala Lumpur, Malaysia

Conference Dates : February 11-12, 2016