ECO-DRAINAGE STUDY AT METRO WATERSHED MALANG

Student Name: Wahyu Novianto
Student Identity Number: 3311202810
Supervisor: Ir. Mas Agus Mardyanto, ME, PhD

ABSTRACT

Metro watershed is one of areas which has changed its land use. Development of settlement areas in upstream and in town areas causes overflow problem at some places that never happened before. This research is conducted in order to solve the inundation problems in this area by implementing eco-drainage system, if possible.

In technical aspect, an evaluation of the existing condition of the channels has been conducted to check whether or not the channels suitable for servicing the runoff. An eco-drainage system has been analyzed its potential to be applied. For some channels that are overflown, the porous channels are evaluated to be used. Second alternative is by applying seepage weels in the areas that are inundated. Cost estimation for each alternative has been analyzed based on unit price at research location.

28 channels out of the total 79 channels at the Metro Watershed are overflown with the total overflown water of 3.225 m$^3$/sec. 90 seepage wells are needed to solve the overflow problem with 3.956 m$^3$/sec discharge can be infiltrated. While porous channels can infiltrates 0.02 m$^3$/sec. Cost required for building seepage wells is IDR 539,100,000.00 while porous channels costs IDR 6,429,000,000.00. Therefore, seepage wells are more suitable to be applied to solve the inundation problem at the Metro Watershed.

Keywords: Metro watershed, eco-drainage, cost estimate.
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