ABSTRACT

Flood Threat Level Changes Due To Countermeasures For Angke River's Brook *(Case Study in Graha Mas Serpong Residential Area)*

Jevon Aristo Kristofer [1)], Tri Nugraha Adikesuma [2)], Rizka Arbaningrum [2)]

[1)] *Student of Civil Engineering Department, Universitas Pembangunan Jaya*
[2)] *Lecturer of Civil Engineering Department, Universitas Pembangunan Jaya*

Graha Mas Serpong of Jelupang neighborhood is located beside Angke River's Brooks and is prone to riverine flooding. Therefore, countermeasures need to be done. This research aims to study the changes of flood threat level (area and depth of flood) under various conditions; no countermeasures, countermeasures by residential side, and countermeasures by researcher (dikes or dredging). The research's methods are hydraulical simulation of HEC-RAS 1D-2D coupled model using Nakayasu Synthetic Unit Hydrograph of flood discharge for return period of 10, 25, and 50 years. The simulation results demonstrate how variations in geometric conditions result in different map of flood threat level. Combination of countermeasures using 1m-high dikes and 1 m-deep riverbed dredging is the scenario that have the most significant change of flood. Between no countermeasure condition and the combination, the changes in the area of flood are 76,13% (return period of 10 years), 88,16% (return period of 25 years), and 93,27% (return period of 50 years).

Keywords**:** *Flood, Countermeasures, HEC-RAS 1D-2D Coupled Model, QGIS, Flood Threat, Return Periods*

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