ABSTRACT

The Study On Flood Mitigation Enhancement Of The Cross-Section of Situ Pondok Jagung

Lutfia Vallentina[1)], Rizka Arbaningrum[2)], Frederik Josep Putuhena[2)]

1) Student of Civil Engineering, Pembangunan Jaya University

2) Lecturer of Civil Engineering, Pembangunan Jaya University

Flood mitigation of Situ Pondok Jagung caused by it's inadequate capacity to handle water, resulting in overflow and localized inundation, this study employed an analytical and simulation modeling approach using SWMM 5.1 software. The modeling process required input data such as Rain Gage, Subctachment, Conduit, Juction, Storage Unit, and Outfall. The analysis and modeling revealed a capacity shortfall, evident from the floodwater levels observed in Situ Pondok Jagung. The analysis and modeling results indicate an excess capacity of the storage capacity, as evidenced by the flood water elevation in Situ Pondok Jagung. Thus, the hydraulic analysis in SWMM 5.1 considers two design conditions: the existing condition with a height of 1.5m, showing a total water discharge of 103,75 m^3/s, and a storage volume of 119.250 m^2. For the planned condition using trial and error experiment, dredging was performed to a depth of 20cm, and an additional 50cm in height was added to the levee. As a result, the height of Situ Pondok Jagung became 2,2m, and a storage volume of 174.900 m^3. This represents a reduction of 40% and indicates that this planning effort could be considered as an alternative solution.

Keywords: *Flooding, Situ Pondok Jagung, Mitigation, SWMM 5.1, Modeling, Simulation, Trial-and-Error Experiments, Normalization.*

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