

## ABSTRACT

### **ANALYSIS OF FLOOD CONTROL USING RETENTION PONDS (Case Study of Tanah Tingal Ciputat T-junction)**

Nabila Maharani Eka Putri <sup>1)</sup>, Prof. Ir. Frederik Josep Putuhena, M.Sc., Ph.D. <sup>2)</sup>

1) Student of Civil Engineering Department, Universitas Pembangunan Jaya

2) Lecturer of Civil Engineering Department, Universitas Pembangunan Jaya

The location of this research is at the Tanah Tingal T-junction and is a connecting road between the Jombang, Ciputat and Bintaro areas. The flood caused long snaking traffic disruptions. This research aims to analyze the height of the inundation that occurs, analyze the required storage pond volume, and analyze the required pump capacity. The variables that will be used in this research are: rainfall, flood discharge, drainage channel capacity, flood volume, retention pond storage volume. The data that will be used include primary data, namely the size of the drainage cross section and secondary data, namely rainfall data, topographic data and literature studies. From the results of processing rainfall data, an analysis of rainfall will then be carried out using the mononobe equation. Next, carry out a network model simulation with EPA SWMM 5.2. The research results show that the total incoming water discharge at the Tanah Tingal T-junction is 1,13 m<sup>3</sup>/s. In planning the retention pond, it was found that the volume of the retention pond needed to handle inundation was 1290 m<sup>3</sup> with a retention pond area of 645 m<sup>2</sup>. The pump that will be used to channel water from the holding pond to the Cibenda River has a capacity of 5,5 m<sup>3</sup>/s. The pump will automatically turn on when the water height reaches 1.5 m and automatically turn off when the water height reaches 0,5 m.

**Keywords:** Flood, Drainage System, Retention Pond, Pump, EPA SWMM 5.2