

## **ABSTRACT**

### ***Study on the Implementation of Retention Ponds in the Ciliwung Flood Area in the Cawang Area, Jakarta***

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*This study examines the effectiveness of implementing retention ponds as a flood control effort in the Cawang area, Jakarta, which is prone to the impact of Ciliwung River overflow. Hydrological analysis was conducted using rainfall data from five stations for 10 years (2014–2023), with rainfall intensity calculated using the Mononobe method and producing values for return periods of 25, 50, and 100 years of 127.87 mm, 136.22 mm, and 144.87 mm, respectively. The planned flood discharge was calculated using the Nakayasu method, producing peak discharges of 191.82 m<sup>3</sup>/second (25 years), 204.33 m<sup>3</sup>/second (50 years), and 217.26 m<sup>3</sup>/second (100 years). The retention pond was designed on an area of 26,700 m<sup>2</sup> with a depth of 5 meters, with a capacity of 133,500 m<sup>3</sup> or equivalent to 9.03%. Although this capacity is not yet sufficient for the needs, the pond has proven to be able to hold peak runoff and reduce outfall volume by 39.03%. The system is equipped with water gates and pumps to regulate the flow of water from and to the river according to elevation conditions. The results of the study show that despite its limited capacity, the retention pond still makes a significant contribution to reducing the risk of flooding in the study area.*

**Keywords:** *Floods, Retention Ponds, Ciliwung, Cawang*

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