

Kazmierczak, B., Kotowski, A., Dancewicz, A. Verification of Storm Sewerage Sizing Methods with the Hydrodynamic Model SWMM 5.0 for the Municipality of Wrocław. *Ochrona Środowiska* 2012, Vol. 34, No. 2, pp. 25–31.

Abstract: Selected flow time methods were verified for application in the design of storm sewer systems, taking a model municipal flat drainage basin of a 1.54 km² surface area as an example. For the purpose of verification, the storm sewerage was sized using three methods: the method of critical intensities with Blaszczyk's formula, the method of critical intensities with the precipitation model for the city of Wrocław, and the method of delay coefficient with the precipitation model for the city of Wrocław. Thereafter use was made of the hydrodynamic model SWMM 5.0 in order to verify the functioning of the storm sewer system, taking into account two factors: damming up above the ground level, and flooding from the drains. Drainage area load was described by Euler's precipitation model (type II) for the conditions of the city of Wrocław, and by an actual rainfall event recorded at the Wrocław-Strachowice station of the Institute of Meteorology and Water Management. It has been demonstrated that the method of delay coefficient, where the absence of both damming up above the ground level and flooding from the drains is taken as the criterion, is a safe flow time method of storm sewer system sizing for this municipal drainage basin.

Keywords: Rainfall, sewerage system, hydrodynamic modeling.