

SUMMARY

Hendra Tri Wijaya, Departement of Civil Engineering, Faculty of Engineering, Brawijaya University. July 2016. *The Benefit of Infiltration Wells in Flood Prevention in South of Penanggungan Village Area, Malang City*. Academic Supervisor : Dr. Ir. M. Ruslin Anwar., M. Si. and Ir. Agus Suharyanto, M. Eng, Ph. D.

With the reduction of green open area in the southern part of the Penanggungan district Malang have major impact on groundwater conditions and an increase in the volume of surface water runoff. When it rains with a duration of more than 60 minutes there will be a puddle on the Veteran road. Water absorption into the soil surface is blocked due to the reduced green open area and the most a major cause of the system of drainage channels around the Veteran's roads can not accommodate the rain water discharge, domestic effluent discharge, and discharge the road surface runoff.

Malang government is currently working to improve drainage channel system in Malang town, but the methods used are still conventional. This method is in principle all the rain that falls in a region must flow into the nearest river. To that end, the necessary efforts to address not only solve drainage problems in the short term, but also can handle the drainage problems in the long term and create an integrated drainage system. One of the measures used to manage the overflow channel that happen is by using infiltration wells. Infiltration wells are wells or holes made for rainwater or surface runoff to flow into the ground to maintain and even increase groundwater levels and reduce the rate of surface water (surface runoff).

As a rule of alternative planning for flood prevention we used a debit plan with a return period of 10 years, divided in each catchment area, for the catchment area 1 at $0.6963 \text{ m}^3/\text{sec}$, catchment area 2 of $0.9168 \text{ m}^3/\text{sec}$, catchment area 3 of $0.6141 \text{ m}^3/\text{sec}$, while the four catchment area of $0.4314 \text{ m}^3/\text{sec}$. Then do the planning of infiltration wells using a debit based division catchment area respectively. To infiltration wells with type 1 circle-shaped cross section with a radius of 1m and a well depth of 3 m. Infiltration wells type 1 is able to reduce debit $0.1791 \text{ m}^3/\text{sec}$. To infiltration wells type 2 square-shaped cross-section with a size of 1 x 1 m and a depth of 3 m high and is capable of reducing $0.1228 \text{ m}^3/\text{sec}$. As for infiltration wells type 3 rectangular with a size of 1.5 x 1 m and a depth of 3 m and is able to reduce the discharge of $0.1842 \text{ m}^3/\text{sec}$. Each recharge wells placed on the shoulder of the road in the area studies due to the land acquisition process requires a short time and cost. With the 37 pieces of infiltration wells in the study area that discharge can be reduced by infiltration wells of $6,780 \text{ m}^3/\text{sec}$. The cost of making 1 piece of infiltration wells for Rp.4.975.760,00 type 1, for the budget plan (RAB) for type 2 infiltration wells Rp. 4.714.187,00 while the budget plan (RAB) infiltration wells to type 3 Rp.5.639.675,00. So a total of 37 pieces of infiltration wells manufacture of Rp.204.020.564,00.

Keywords : Water Discharge, Penanggungan District, Puddle, Infiltration Wells