EVALUASI KAPASITAS DRAINASE EKSISTING DAERAH MARANSI PADANG SUMATERA BARAT

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Abstrak

Salah satu daerah yang sering terjadi banjir adalah daerah Maransi Aia Pacah Kecamatan Koto Tangah. Air buangan berupa air hujan harus diatur alirannya melewati sistem drainase dan diarahkan ke tempat penampungan akhir di mana sistem drainase bermuara. Arah aliran akan ditentukan melewati sistem drainase sehingga tidak menimbulkan kekumuhan. Pengembangan drainase berkelanjutan adalah meningkatkan daya guna air, meminimalkan kerugian, serta memperbaiki dan konservasi lingkungan. Prioritas utama dalam mewujudkan konsep tersebut harus ditujukan untuk mengelola limpasan permukaan dengan cara mengembangkan fasilitas untuk menahan air hujan.

Besarnya debit hujan untuk fasilitas drainase tergantung pada interval kejadian atau periode ulang yang dipakai. Analisa curah hujan dan periode ulang yang digunakan dalam penelitian ini adalah Distribusi Normal, Distribusi Log Normal, Gumbel, Intensitas Hujan, Koefisian Aliran Permukaan, dan Metode Rasional.

Kemampuan debit Layanan pada saluran drainase daerah Maransi kondisi lapangan berbentuk trapesium pada titik 1-2 = 1,1613 m3/dt, 2-3 = 1,2859 m3/dt, 3-4 = 0,9748 m3/dt, 4-5 = 1,361 m3/dt, 5-6 = 1,6602 m3/dt, 6-7 = 1,998 m3/dt, 7-8 = 2,15488 m3/dt. Perhitungan dimensi saluran drainase persegi pada titik 1-2 dengan lebar (b) = 1.52m dan tinggi saluran (H) = 1.06m, titik 2-3 dengan lebar (b) = 1.62m dan tinggi saluran (H) = 1.12m, titik 3-4 dengan lebar (b) = 1.68m dan tinggi saluran (H) = 1.14m, titik 4-5 dengan lebar (b) = 1.78m dan tinggi saluran (H) = 1.19m, titik 5-6 dengan lebar (b) = 1.86m dan tinggi saluran (H) = 1.23, titik 6-7 dengan lebar (b) = 1.92m dan tinggi saluran (H) = 1.26m, titik 7-8 dengan lebar (b) = 2.28m dan tinggi saluran (H) = 1.44m.

Kata Kunci : **Analisa sistem Drainase, Debit banjir, Kapasitas saluran**

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EVALUATION CAPACITY EXISTING DRAINAGE AREAS WEST SUMATRA PADANG MARANSI

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Abstract

One of the areas that frequently floods is the area of Muarantine Aia Pacah, Koto Tangah District. Wastewater in the form of rainwater must be flowed through the drainage system and directed to the final reservoir where the drainage system empties. The direction of flow will be determined through the drainage system so that it does not cause slums. Sustainable drainage development is to increase water use, minimize losses, and improve and conserve the environment. The main priority in realizing the concept should be aimed at managing surface runoff by developing facilities to retain rainwater.

The amount of rain discharge for drainage facilities depends on the interval of occurrence or the return period used. Rainfall analysis and return period used in this study are Normal Distribution, Log Normal Distribution, Gumbel, Rain Intensity, Surface Flow Coefficient, and Rational Methods.

Service discharge capability in the drainage area of the Muarantine area, field conditions are trapezoidal at points 1-2 = 1.1613 m3 / s, 2-3 = 1.2859 m3 / s, 3-4 = 0.9748 m3 / s, 4-5 = 1.361 m3 / s, 5-6 = 1.6602 m3 / s, 6-7 = 1.998 m3 / s, 7-8 = 2.15488 m3 / s. Calculation of the dimensions of a square drainage channel at point 1-2 with width (b) = 1.52m and channel height (H) = 1.06m, point 2-3 with width (b) = 1.62m and channel height (H) = 1.12m, point 3-4 with width (b) = 1.68m and channel height (H) = 1.14m, point 4-5 with width (b) = 1.78m and channel height (H) = 1.19m, point 5-6 with width (b) = 1.86m and channel height (H) = 1.23, point 6-7 with width (b) = 1.92m and channel height (H) = 1.26m, point 7-8 with width (b) = 2.28m and channel height (H) = 1.44m.

Keywords : **Drainage system analysis, flood discharge, channel capacity**

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