

ANALISA PERENCANAAN BENDUNG BATANG PINAGAR KABUPATEN PASAMAN BARAT PROVINSI SUMATERA BARAT

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Abstrak

Di Kejorongan IV Koto, Kecamatan Kinali, Kabupaten Pasaman Barat terdapat Daerah Irigasi Batang Pinagar, dari survei didapati bahwa kondisi irigasi dalam keadaan baik, namun terdapat area persawahan yang tidak dapat terairi, pada konstruksi bendung terjadi kerusakan pada bagian mercu dan peredam energi sehingga tinggi terjun tidak tercapai dan mempengaruhi stabilitas bendung. Oleh karena itu perlu dilakukan desain secara rinci terhadap bendung agar mampu memenuhi kebutuhan air Daerah Irigasi Batang Pinagar. Studi perencanaan bendung dimulai dari analisa hidrologi, hidrolis bendung dan stabilitas konstruksi bendung. Data-data pendukung adalah peta topografi dan data curah hujan berdasarkan 15 tahun pengamatan, maka diperoleh luas DAS 29,55 km², dengan debit banjir rencana $Q_{50} = 253,52 \text{ m}^3/\text{dt}$, tinggi mercu 2,4 m pada mercu bulat, dengan peredam energi tipe bak tenggelam, direncanakan lebar efektif bendung 27,5 m, dilengkapi 3 buah pintu intake dengan debit 1,78 m³/dt, sehingga dapat mengairi area pertanian se luas 814 Ha. Pada perhitungan stabilitas bendung kondisi air normal dan kondisi air banjir didapatkan bendung aman terhadap guling, geser dan daya dukung tanah. Maka konstruksi bendung stabil.

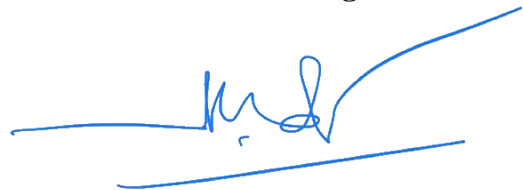
Kata Kunci : Hidrologi, Hidrolis Bendung, Stabilitas Bendung.

Pembimbing I



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Pembimbing I



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PLANNING ANALYSIS OF DAM ROD PINAGAR WEST PASAMAN DISTRICT WEST SUMATRA PROVINCE

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Abstract

In Kejorongan IV Koto, Kinali Subdistrict, West Pasaman Regency there is the Batang Pinagar Irrigation Area, from the survey it was found that the irrigation conditions were in good condition, but there were rice fields that could not be irrigated, in the construction of the weir there was damage to the lighthouse and the energy damper so that the height fell. is not reached and affects the stability of the weir. Therefore it is necessary to do a detailed design of the weir in order to be able to meet the water needs of the Batang Pinagar Irrigation Area. Weir planning studies start from the analysis of the hydrology, hydrology of the weir and the stability of the weir construction. Supporting data are topographic maps and rainfall data based on 15 years of observation, it is obtained a watershed area of 29,55 km², with a planned flood discharge of $Q_{50} = 253.52 \text{ m}^3/\text{s}$, 2,4 m high lighthouse on a round lighthouse, with a damper. energy sink type, planned effective width of the weir 27,5 m, equipped with 3 intake gates with a discharge of 1,78 m³/s, so that it can irrigate an agricultural area of 814 ha. In calculating the stability of the weir in normal water conditions and in flood water conditions, it is found that the weir is safe against rolling, shear and soil bearing capacity. Then the weir construction is stable.

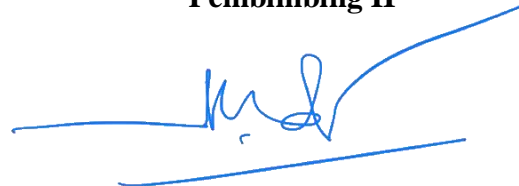
Keywords : Weir, Hydraulic Weir, Weir Stability.

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