

TUGAS AKHIR

“Analisa *Groundsill* Batang Sungai Limau di Kecamatan Sungai Limau Kabupaten Padang Pariaman”

*Disusun guna memenuhi persyaratan mata kuliah Tugas Akhir pada
Program Studi Teknik Sipil Fakultas Teknik Sipil dan Perencanaan
Universitas Bung Hatta*

Oleh :

NAMA : MUTIARA HUSNA HARDIYEN

NPM : 1710015211052



**PROGRAM STUDI TEKNIK SIPIL
FAKULTAS TEKNIK SIPIL DAN PERENCANAAN
UNIVERSITAS BUNG HATTA
PADANG**

2021

TUGAS AKHIR

**ANALISA *GROUND SILL* BATANG SUNGAI LIMAU KECAMATAN
SUNGAI LIMAU KABUPATEN PADANG PARIAMAN**

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Nama : MUTIARA HUSNA HARDIYEN

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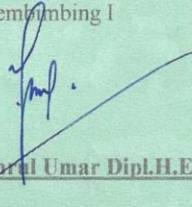
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Padang, 25 Februari 2022

Menyetujui :

Pembimbing I



Dr. Ir. Zahri Umar Dipl.H.E

Pembimbing II



Edwina Zainal, S.T., M.Eng Ph.D

Dekan FTSP



Prof. Dr. Ir. Nasfryzal Carlo, M.Sc

Ketua Program Studi



Indra Khaidir, ST, MSc

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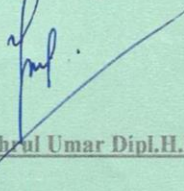
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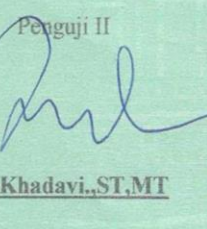
Edwina Zainal, S.T., M.Eng Ph.D

Penguji I



Dr. Ir. Lusi Utama., M.T

Penguji II



Dr. Khadavi., ST, MT

ANALISA *GROUNDSTALL* BATANG SUNGAI LIMAU KECAMATAN SUNGAI LIMAU KABUPATEN PADANG PARIAMAN

Mutiara Husna Hardiyen¹, Zahrul Umar², Edwina Zainal³

Program Studi Teknik Sipil, Fakultas Teknik Sipil dan Perencanaan,
Universitas Bung Hatta

Email : ¹mutiarahusnahardiyen@gmail.com, ²zahrulumar@yahoo.co.id, ³edwinazainal@bunghatta.ac.id

ABSTRAK

Material kerikil, pasir merupakan material yang banyak digunakan dalam konstruksi pada bidang Teknik Sipil. Di Batang Sungai Limau banyak terjadi penambangan material yang dilakukan oleh masyarakat sekitar dan mengakibatkan turunnya dasar sungai sehingga kecepatan aliran sungai semakin tinggi dan terjadinya pengikisan tanah pada tebing-tebing sungai dan penggerusan dasar sungai, sehingga perlu dibangun (Ambang Dasar) atau *groundsill*.

Penulis melakukan analisis hidrologi guna untuk mendapatkan hujan rencana serta debit banjir rencana dan dilanjutkan dengan analisa hidrolis atau dimensi *groundsill*. Setelah dilakukan analisa hidrolis *groundsill* kemudian dihitung stabilitas *groundsill* terhadap guling, geser dan daya dukung tanah. Dari perhitungan hidrolis didapatkan tinggi mercu 2 m, lebar mercu 2,5 m dengan tipe mercu *groundsill* ambang datar, kolam olak tipe USBR. Dengan hasil demikian disimpulkan bahwa konstruksi *groundsill* aman terhadap guling, geser dan daya dukung tanah.

Hujan rencana yang terpilih yaitu metode Gumbel periode ulang 50 tahun di dapat Q_{50} sebesar 213,570 m³/dtk, serta debit banjir rencana dengan metode Hasper periode ulang 50 tahun di dapat Q_{50} sebesar 230,13 m³/dtk. Lebar efektif *groundsill* 23,568 m, panjang kolam olak 24,383 m.

Kata Kunci : *Groundsill*, Debit Banjir, Stabilitas

Pembimbing I



Dr. Ir Zahrul Umar Dipl.H.E

Pembimbing II



Edwina Zainal,S.T.,M.Eng Ph.D

GROUND sill ANALYSIS OF LIMA U RIVER STEM SUNGAI LIMA U DISTRICT, PADANG PARIAMAN REGENCY

Mutiara Husna Hardiyen¹, Zahrul Umar², Edwina Zainal³

Civil Engineering Study Program, Faculty of Civil Engineering and Planning,
Bung Hatta University

Email : ¹mutiarahusnahardiyen@gmail.com, ²zahrulumar@yahoo.co.id,
³edwinazainal@bunghatta.ac.id

ABSTRACT

Material gravel, sand is a material that is widely used in construction in the field of Civil Engineering. In Batang Sungai Limau, there is a lot of material mining carried out by the surrounding community and resulting in a decrease in the riverbed so that the speed of the river flow is higher and soil erosion occurs on river cliffs and erosion of the riverbed, so it is necessary to build (Basic Threshold) or *groundsill*.

The author conducted a hydrological analysis in order to obtain the planned rain and flood discharge plans and continued with hydraulic analysis or *groundsill* dimensions. After the hydraulic analysis of the *groundsill* was carried out, the *groundsill* stability was calculated against overturning, shearing and the bearing capacity of the soil. From the hydraulic calculation, it was found that the height of the crest is 2 m, the width of the crest is 2.5 m with a flat threshold *groundsill* type, and a stilling pool of USBR type. With these results it is concluded that the *groundsill* construction is safe against overturning, shearing and soil bearing capacity.

The selected rainfall plan is the Gumbel method with a 50-year return period in Q50 of 213,570 m³/s, and the planned flood discharge using the Hasper method for a 50-year return period in Q50 of 230.13 m³/s. The effective width of the *groundsill* is 23,568 m, the length of the stilling pool is 24,383 m.

Keywords: Groundsill, Flood Discharge, Stability

Pembimbing I



Dr. Ir Zahrul Umar Dipl.H.E
Ph.D

Pembimbing II



Edwina Zainal,S.T.,M.Eng

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