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Nama : Anggi Purnama Sari Dewi; Mariana Safitri
Afiliasi : Universitas Bina Darma
Email korespondensi :mariana.202304070414@student.atmajaya.ac.id, anggipurnama27@gmail.com
No. HP/WA :
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Communication - Social - Technology

ANALISIS PENYEBAB BANJIR PADA JALAN RAYA DI KOTA PALEMBANG (STUDI KASUS : JL. URIP SUMAHARJO LRG.LANGGAR AJENDAM II SRIWIJAYA)

Analysis of Causes of Flooding on Highways in Palembang City (Case Study: Jl. Urip Sumaharjo Lrg. Langgar Ajendam II Sriwijaya)

Anggi Purnama Sari Dewi[1] , Mariana Safitri[2]
[1]Universitas Bina Darma[1]
Jl. General A. Yani No.3 Palembang, South Sumatra, Indonesia [1]
[2,3]Universitas Katolik Indonesia Atma Jaya
Jl. Jend. Sudirman No.51 5, RT.004/RW.4, Karet Semanggi, Kecamatan Setiabudi, Kota Jakarta Selatan _[2]
[1]nggipurnama27@gmail.com; [2]marianasafitri@gmail.com

Diterima tgl. 20 April 2024 Direvisi tgl. 28 Mei 2024 Disetujui tgl. 6 Juni 2024

ABSTRACT

Flooding is a natural disaster that often hits Indonesia, causing material losses and loss of human life. Flood control systems, such as drainage systems, are an important solution to reduce the adverse effects of flooding. This research aims to analyze the causes of flooding in lr.langgar through a case study approach, this research aims to identify the factors that cause flooding at that location. Data analysis and hydrology, and drainage system evaluation. The analysis found that the cause is the narrowing channel size due to the accumulation of sedimentation in the channel, the accumulation of garbage, and the thickness of the mud in the channel also affects the reduction in channel dimensions.

Keywords: Flood, Drainage System, Highway, Hydrology

ABSTRAK

Banjir merupakan bencana alam yang sering melanda Indonesia, menyebabkan kerugian material dan hilangnya nyawa manusia. Sistem pengendalian banjir seperti sistem drainase, menjadi solusi penting untuk mengurangi dampak buruk banjir. Penelitian ini bertujuan untuk menganalisis penyebab terjadinya banjir di lr.langgar melalui pendekatan studi kasus, penelitian ini bertujuan untuk mengidentifikasi faktor-faktor penyebab banjir di lokasi tersebut. Analisis data dan hidrologi, dan evaluasi sistem drainase. Hasi analisis didapatkan bahwa penyebabnya adalah ukuran saluran yang menyempit dikarenakan penumpukan sedimentasi pada saluran, penumpukan sampah, serta ketebalan lumpur yang ada pada salura juga mempengaruhi mengurangnya pada dimensi saluran.

Kata kunci: Banjir, Sistem Drainase, Jalan Raya, Hidrologi

INTRODUCTION

Flooding is one of the natural disasters that can have a significant impact on the life and infrastructure of an area. Palembang City, as one of the major cities in Indonesia, is not spared from the threat of flooding that can harm the community and hamper the smooth running of daily activities. One location that is often affected by flooding is the highway in Palembang City, especially Jl. Urip Sumaharjo Lrg. Langgar Ajendam II Sriwijaya.

This case study aims to conduct an in-depth analysis of the causes of flooding on the highway. An in-depth understanding of the factors that cause flooding at this location is crucial in order to identify effective and sustainable solutions. By understanding the root causes of the problem, it is hoped that mitigation strategies can be designed that can reduce the risk of flooding in the future.

Jalan Raya Urip Sumaharjo Lrg. Langgar Ajendam II Sriwijaya was chosen as the focus of the case study because it is a flood-prone point and has a significant impact on community mobility and the local economy. Through this analysis, it is expected to contribute to better planning and management efforts related to flood risk mitigation in Palembang City.

The study will involve field data collection, hydrological analysis and evaluation of existing infrastructure. By detailing the causes of flooding, it is hoped that the results of this study can provide useful information for the government, stakeholders and the general public to take appropriate preventive measures to reduce the adverse impacts of flooding on the Highway.

PESEARCH METHODOLOGY

The location of this research is on the Palembang city highway, urip sumiharjo Ajendam II Sriwijaya road. This research was conducted in one of the drainage networks located in one of the Palembang city areas, especially on Ajendam II Sriwijaya Road.

From the results of the analysis of existing drainage channels in the research conducted at Jalan Ajendam II Sriwijaya, the results of the field survey can be seen in Table 3.1.

Figure 2.1 Study Location Map

Table 3.1 Existing Channel Data

No.	Channel Length (m)	Channel Width (m)	Channel Height (m)	Water Height (m)
1	100	0.8	0.75	0.1
2	197	0.75	0.75	0.1
3	90	0.45	0.4	0.1
4	85,75	0.55	0.55	0.1
5	309,72	1.2	0.8	0.2
6	85	0.65	0.65	0.1
7	85	0.45	0.5	0.1
8	157	1.3	0.75	0.2
9	87	1.1	1.05	0.2
10	197,78	1.3	0.9	0.2
11	64	0.9	0.75	0.1
12	25	0.7	0.75	0.1
13	72	0.65	0.5	0.1
14	54	0.8	0.7	0.1
15	208	1.6	1.1	0.35

16	220	1.6	1.2	0.35
17	90	1.05	0.8	0.15
18	90	1.05	0.8	0.15
19	258	1.75	1.2	0.35

In this study the data needed:

1. Secondary data

Secondary data used in the form of :

a. Existing drainage dimensions include drainage cross-section size, unit height and width (m) and flow direction.

b. Material data that is the basis of the channel as the formation of the drainage channel cross section to determine the manning coefficient to be used.

c. Topography (elevation) measurement

d. Flood point of the case study area

2. Primary data

Primary data used in this study:

a. Topographic data in the form of parameter elevation data and drainage channel length.

b. Rainfall data from rainfall stations that affect the flow in the drainage system studied with a data range of ± 10 years at each station.

RESULTS AND DISCUSSION

Based on the methodology used in the analysis of the causes of flooding on the urip sumiharjo road section of Palembang city, a number of data are needed to be able to support the survey, among others, is to know the condition data when flooding occurs, at the location where the drainage condition assessment will be carried out on the highway. The survey data obtained are as follows:

A. Slope Condition Survey Results

Ajendam II/Sriwijaya JL.Urip Sumaharjo, 2 ilir, Kec.ilir Timur II, Palembang City is a public road that serves as a means of access to transportation for local residents who are mostly passed by private vehicles such as motorbikes, cars, and others. The more dense the population that passes through the road, it is not surprising that there is often damage to the roads in this area. The drainage

discharge path in the Ajendam II / Sriwijaya JL.Urip Sumaharjo area, 2 ilir, Kec.ilir Timur II, is directly directed to the musi river.

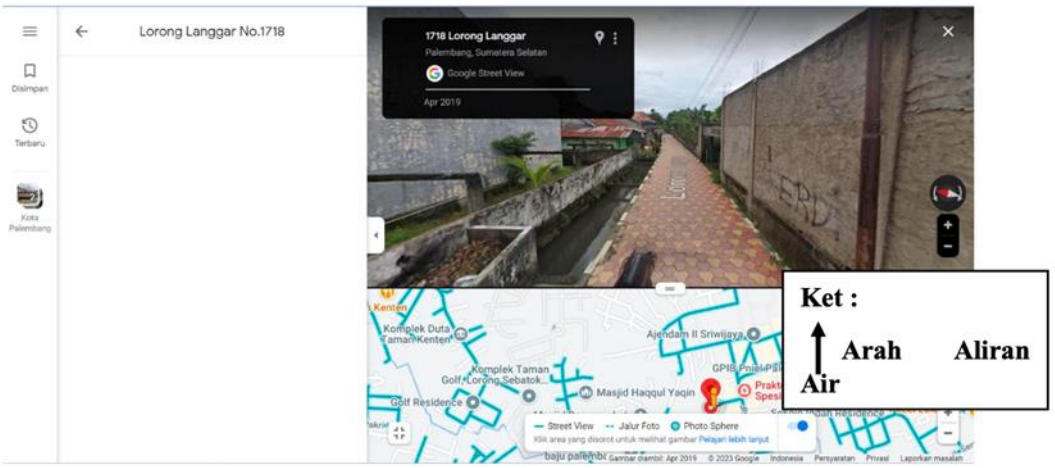

Figure 3.1 Research location

A.1. Drainage analysis

The drainage channels that we analyze are purpose-built structures, which require specialized structures such as gullies, concrete masonry, and masonry, and produce data:

1. Water Level : 33.5 cm
2. Sedimentation Height :16 cm

A.2. Research Result Data

Channel Data

- Channel Shape : Rectangular
- Channel Height : 92 cm
- Channel Width : 143 cm
- Water Level : 16 cm
- Puddle Height: +56 cm

A.3. Detail of Channel Size and Water Level

Figure 3.2 Measuring Channel Width

Figure 3.3 Measuring Drainage Height

Figure 3.4 Measuring Sedimentation

A.4. Channel Size Specifications

Based on the measurement data in the field, the drainage channel size is obtained as follows.

Channel Width = 143 cm **Channel Height = 92 cm**

Water level 16 cm **Sedimentation = 16 cm**

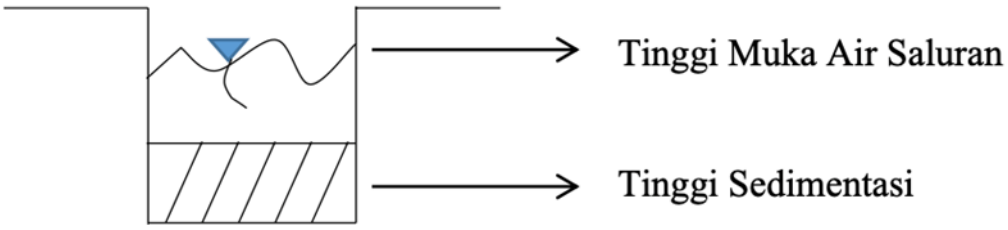

Figure 3.5 Channel Specifications

B. Problems Occurring at the Review Site

After conducting a field survey in the drainage area, we found things that made the drainage less well-functioning in the area. Among these problems are:

- There is no filter in the drainage channel so that waste flows directly with the current.
- Lack of maintenance so that the moss is too thick around the drainage and also makes the drainage slippery so that when we surveyed someone fell.
- High sediment levels in the Drainage so that when it rains the channel does not hold water well and causes flooding or quickly overflows onto the road.

C. Consequences

With topographical conditions and the result of this problem is thick sediment resulting in rainwater overflow and flooding, puddles, and other negative impacts on the environment and infrastructure in the area.

Figure 3.6 photo of Ajendam II/Sriwijaya road affected by flooding.

D. Solution

As for overcoming flooding Ajendam II / Sriwijaya Lr Langgar

1. Make improvements to drainage channels
2. Dredging the sedimentation so that the volume of water in the sedimentation will not increase or excess.
3. Conduct regular maintenance

4. Making infiltration wells. Infiltration wells are one of the water conservation engineering techniques in the form of buildings made in such a way as to resemble the shape of a dug well with a certain depth that serves as a place to collect rainwater that falls on the roof of a house or impermeable area and infiltrate it into the ground.

CONCLUSION

The conclusion of this study aims to determine the cause of flooding on the urip sumiharjo road during the rainy season, it is found that the condition of the drainage channel on the road is clogged by plants, sedimentation by mud or accumulation of garbage in the channel.

Bagian PENUTUP berisi kesimpulan ataupun ikhtisar penelitian yang telah dilakukan dan ditulis tanpa menggunakan penomoran. Pemaparan kesimpulan dan saran/rekomendasi cukup dipisahkan oleh paragraf, tidak dalam bentuk subbagian.

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