

**INUNDATION ANALYSIS IN KALIGawe STREET SEMARANG USING
HEC-RAS SOFTWARE**

Final Project Report

as the requirement to obtain bachelor's degree from

Universitas Atma Jaya Yogyakarta

by:

Anjuatri Ramadhany

Student ID Number: 141315336



INTERNATIONAL CIVIL ENGINEERING PROGRAM

FACULTY OF ENGINEERING

UNIVERSITAS ATMA JAYA YOGYAKARTA

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ADVISOR APPROVAL SHEET

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ANJUATRI RAMADHANY

Student ID: 14 13 15336

Has been evaluated and approved
Yogyakarta, *Feb 5, 2021*.....

Supervisor,



Agatha Padma L., S.T., M.Eng.

Department of Civil Engineering

Chairman



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Ir. A. Y. Hariyanto Setiawan, M.Eng., P.hD

APPROVAL

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	Signature	Date
Chairman : Agatha Padma L., S.T., M.Eng.		Feb 5, 2021
Member : Ir. A.Y. Harijanto Setiawan, M.Eng., P.hD	
Member : Prof. Dr. Ir. AM. Ade Lisantono, M.Eng.		Feb.5, 2021

DECLARATION SHEET

I signed below stating that the final project with the title:

**“INUNDATION ANALYSIS IN KALIGAWA STREET SEMARANG
USING HEC-RAS SOFTWARE”**

It is the result of my own work and not a result of plagiarism of other's people now. Ideas, research data, and quotes are directly or non-directly derived from the writings or ideas of others expressly provided in this Final Project. If it is proven later that this final project is result from plagiarism, the graduation certificate that I received will be canceled and return to Universitas Atma Jaya Yogyakarta.

Yogyakarta,

Who made the remarks,



Anjuatri Ramadhany

ACKNOWLEDGEMENT

Puji syukur kula aturaken wonten ngarsanipun Gusthi Allah Ingkang Maha Agung sahingga laporan punika saged kasusun kanthi sae. Boten kesupen kula aturaken matur sembah nuwun dumateng tiyang sepuh kawula ingkah tansah paring donga pangestu.

This final project would not be done without any help from people around me. Thus, I would like to express my gratitude to all people who helped me in the process to complete this final project. I would like to extend my gratitude to the following:

1. Agatha Padma L., S.T., M.Eng. as my final project supervisor whom always give me support, advices, guidance that benefited for me to complete this final project.
2. BMKG, DPU, BAPPEDA, DISTARU Semarang city, JAXA GSMaP whom provide data for this final project.
3. ICEP students who always giving support during final project process. Especially Vareskyu, Agus Tobing.
4. Angela Shinta and Ayu Adina for accompany and always giving me support, also being discussion buddy.
5. Singgah Coffee and Book that become my second home during college process and provide space to complete this final project.

I realize that this report may have flaws and may have space for further improvement. Due to this reason, any suggestion and critics will be accepted. At last, I hope this report could be useful for the readers.

Yogyakarta, October 2020

Anjuatri Ramadhany

141315336



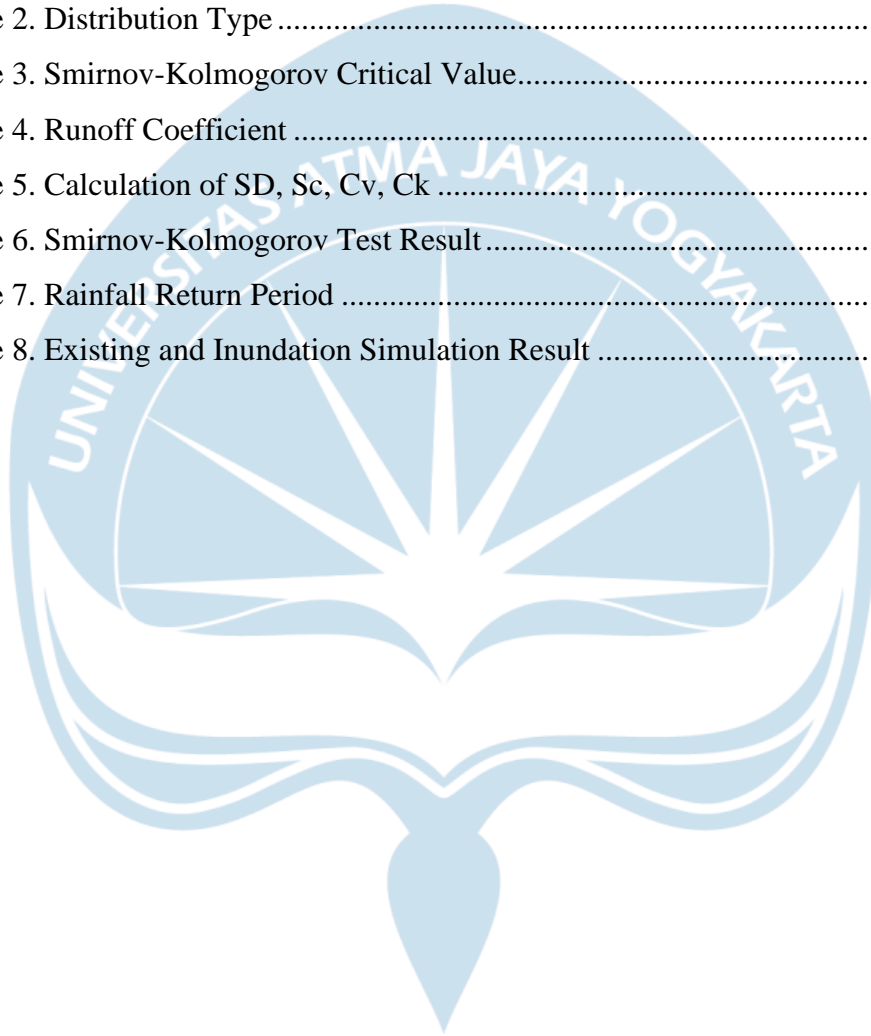
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ABSTRACT

INUNDATION ANALYSIS IN KALIGAWA STREET SEMARANG USING HEC-RAS SOFTWARE, Anjuatri Ramadhany, Student ID Number 14 13 15336, Year of 2021, Hydraulic Engineering, International Civil Engineering Program, Department of Civil Engineering, Universitas Atma Jaya Yogyakarta.

Inundation in Kaligawe street affected by heavy rainfall, lack of maintenance on drainage system, sea-level rising, and land subsidence. For the simulation of long-term inundation in Semarang, most study focused on impact of sea-level rising and land subsidence to inundation height. This observation aims to investigate main factor that cause inundation along Kaligawe street Semarang and impact of sea-level rising and land subsidence to height of inundation. One-dimensional HEC-RAS simulation used as a method to carry out height of inundation. Simulation conducted on existing condition, longest period of inundation, and 2, 5, 10, 25 years forecasting under 3 scenarios. Existing condition compared to canal capacity along Kaligawe street to observe inundation factor that come from drainage system. Furthermore, simulation on 2, 5, 10, 25 years forecasting under rainfall, sea-level rising, and land subsidence scenarios carried out to find out factor that influence inundation the most. The result indicates that canal along Kaligawe street did not adequate to accommodate inundation discharge. Furthermore, sea-level rising has no impact to height of inundation along Kaligawe street. However, land subsidence contributes 0.98-meter inundation for next 25 years. Thus, small capacity of canal become the major factor that causing inundation along Kaligawe street Semarang.

Keywords: inundation, sea-level rising, land subsidence, HEC-RAS