

**PROPOSED DESIGN OF DRAINAGE SYSTEM ALONG  
MACALLANES DRIVE AND STA. RITA ROAD  
IN TAGAYTAY CITY, CAVITE**

**Design Project**

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**PROPOSED DESIGN OF DRAINAGE SYSTEM ALONG MAGALLANES DRIVE AND  
STA. RITA ROAD IN TAGAYTAY CITY, CAVITE**

An Undergraduate Design Project  
Submitted to the Faculty of the  
College of Engineering and Information Technology  
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In partial fulfillment  
of the requirements for the degree  
Bachelor of Science in Civil Engineering



*Proposed design of two-lane truss bridge  
in General Trus, Cavite  
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## **ABSTRACT**

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The Proposed Design of Drainage System along Magallanes Drive and Sta. Rita Road in Tagaytay City, Cavite was conducted from June 2013 to February 2014 at Cavite State University.

The study aimed to provide a design of drainage system along Magallanes Drive and Sta. Rita Road, Tagaytay City, Cavite which can be used as reference of incoming Civil Engineering students, Municipality of Tagaytay City, and Cavite State University for future implementation.

The study included the design of drainage system, detailed cost estimates of materials and labor used using the man-hour basis method.

The drainage system adopted the CHB lined canal with concrete cover. The depth of each canal were designed to be 0.8, 0.6, 0.7, 0.8, and 0.7 meter and the width ranges from 1, 0.7, 0.9, 1.3 and 1 meter. The study revealed that the estimated materials and labor costs in linear meter for drainage 1, 2, 3, 4 and 5 were P 2,584.17/m, P 2,154.93/m, P 2,352.40/m, P 2,786.37/m and P 2,420.33/m, respectively. The total project cost of P 19,624,585.88.

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# **PROPOSED DESIGN OF DRAINAGE SYSTEM ALONG MAGALLANES DRIVE AND STA. RITA ROAD, TAGAYTAY CITY, CAVITE**

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An undergraduate thesis presented to the faculty of the Department of Civil Engineering, College of Engineering and Information Technology, Cavite State University, Indang, Cavite in partial fulfillment of the requirements for the degree of Bachelor of Science in Civil Engineering with Contribution No. CEIT-2013-14-050. Prepared under the supervision of Engr. Renato B. Cubilla.

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## **INTRODUCTION**

One of the essential components of a community is the maintenance of its sanitation through drainage system. It provides uniform drainage of storm water in a community to prevent flooding as it discharges the water to a drainage basin or outfall.

Drainage is the removal of surface or subsurface water from a given area by natural or artificial means. The term is commonly applied to the removal of excess water by canals, drains, ditches, culverts, and other structures designed to collect and transport water either by gravity or by pumping.

Magallanes Drive is one of the alternative routes in Tagaytay City going to Manila that is located in between Barangay Maharlika East and Silang Crossing West Tagaytay City, Cavite with a total area of 73.82 and 248 hectares, respectively. On the other hand, Sta. Rita road is located at Kaybagal Central, Tagaytay City. The total length of concrete road is 3.9kilometers.