

**UNIVERSITI TEKNOLOGI MARA**

**CADASTRAL DATABASE  
POSITIONING ACCURACY  
IMPROVEMENT: A CASE STUDY  
OF HANDLING COMMON  
BOUNDARIES DIFFERENT VALUES**

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**BACHELOR OF SURVEYING  
SCIENCE AND GEOMATICS  
(HONOURS)**

**AUGUST 2023**

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Disertation submitted in partial fulfillment  
of the requirements for the degree of  
**BACHELOR OF SURVEYING SCIENCE AND  
GEOMATICS (HONOURS)**

**COLLEGE OF BUILT ENVIRONMENT**

**AUGUST 2023**

## **AUTHOR'S DECLARATION**

I declare that the work in this dissertation was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This dissertation has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Postgraduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

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Thesis : Cadastral Database Positioning Accuracy  
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## ABSTRACT

Experimenting with ways for enhancing cadastral map positional accuracy (PAI) and connecting them with third-party geospatial data in land administration systems is a rising interest around the world. This interest has sparked a rise in cadastral modernization, which aims to replace single and static parcel paper maps with a new cadastral database based on a global digital map. However, this transition presents challenges, particularly regarding the common boundaries in the cadastral database, since the same boundary line have several values based on each of the Certify Plan because of the data updating from time to time. Therefore, the aim of this paper is to study the impact of different values of common boundary in development of cadastral database of Perlis State. The method to accomplish the goal is by using the Least Square Adjustment (LSA) of two different method which are bearing and angular methods. By analysing the standard error and the effect on the coordinates, we can determine the best method for handling the common boundary issues. The results indicate that the angular method is more effective in handling the different values of common boundaries in the database compared to the bearing distance method. The novelty of this study, where the higher positional accuracy of the cadastral database can be achieved and can assist the Department of Survey and Mapping Malaysia (DSMM) in handling the variety type of Certify Plan classes in the database by using Angle Distance Method.

**Keywords:** Positioning Accuracy Improvement, Least Square Adjustment, Common Boundaries, National Digital Cadastral Database.

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