

UNIVERSITI TEKNOLOGI MARA

**ACCURACY ASSESSMENT OF
ORTHOPHOTO IMAGE SURFACE
MODEL FOR AS BUILT SURVEY
DATA COLLECTION**

MOHAMAD AZRI BIN MOHAMMED NOOR

Disertation submitted in partial fulfillment
of the requirements for the degree of
Bachelor of Surveying Science and Geomatics
(Honours)

Faculty of Architecture Planning and Surveying

AUGUST 2022

ACKNOWLEDGEMENT

Alhamdulillah to Allah S.W.T. for giving the opportunity to complete the task within the time that have been given. I would like to express the appreciation to supervisor for final year project, Sr Zuraihan Binti Mohamad for the guidance and instructions given throughout this task. She always advice and encouraged from before the starting of the task to the end. So, I would like to say thank you to the supervisor for sharing and giving the opportunity to gain new knowledges, techniques, and a few skills on how the work is carried out in real job.

Next, I would like to thank my parents and family for their support and prayers that accompanied me throughout the task. The encouragement that they have gave made me to become strong and determined to do the best and complete the task.

Lastly, thanks to all friends for the cooperation, dedication and for supporting each other during the task until the end of the dissertation. Last but not least thanks to those who have help and gave contributions directly or indirectly to me throughout the task.

ABSTRACT

This study assess the accuracy obtainable from orthophoto surface model captured at different altitudes for positioning and two dimensional as built survey. To achieve this purpose, the objectives includes; perform data collection for as-built survey at different altitudes using the multi-rotor UAV; generate orthophoto image and surface model to extract position and 2D data; and compare the position and dimension between ground survey and orthophoto. Thus, the study focuses on producing positional and 2D data using orthophoto images captured at two different altitudes (50 and 120 meters) in order to evaluate which altitudes is more suitable for as build survey purpose. Once orthophotos generated, the position and 2D data were extracted and compared with field data using total station. The findings, concludes that orthophoto images could provide acceptable as-build accuracy with error at sub-meters level; and the lower the altitudes, the smaller error produced in both X and Y dimensions, area and in distance measured.

CHAPTER ONE

INTRODUCTION

1.1 Introduction

This chapter describe the detailed information on research background, problem statements, aim and objectives, research question, and significance of study.

1.2 Research Background

As built survey is one of the important survey works in the field of engineering. As built surveys are required to manage variations from engineering plans to a set of drawings that contain all the information about the construction project to be carried out. As know, all organizations involved in the construction project will conduct as built survey aimed at verifying the latest updated position of the structure. This is very crucial for future maintenance and development site.

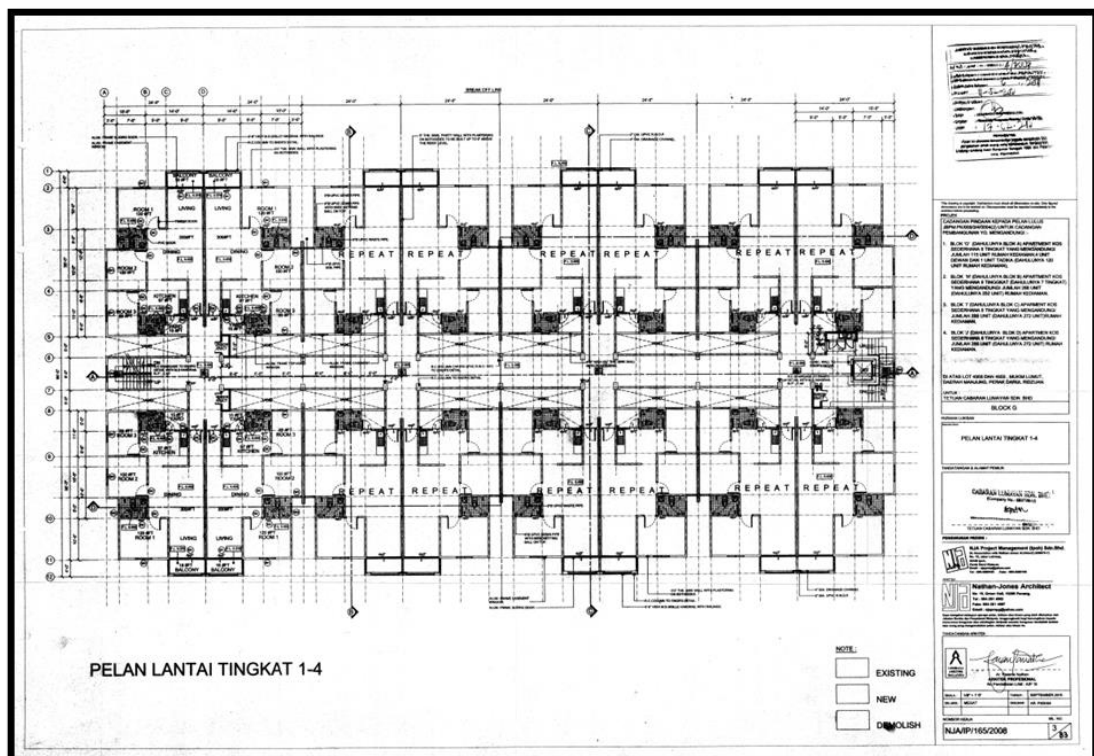


Figure 1.1: As-Built Survey Result

TABLE OF CONTENT

	Page
CONFIRMATION BY PANEL OF EXAMINERS	ii
AUTHOR'S DECLARATION	iii
SUPERVISOR'S DECLARATION	iv
ABSTRACT	v
ACKNOWLEDGEMENT	vi
TABLE OF CONTENT	vii
LIST OF TABLES	x
LIST OF FIGURES	xi
LIST OF ABBREVIATIONS	xiii
CHAPTER ONE	1
INTRODUCTION	1
1.1 Introduction	1
1.2 Research Background	1
1.3 Problem Statement	2
1.4 Research Questions	4
1.5 Aim and Objectives	4
1.6 Significance of Study	4
1.7 Study Area	5
CHAPTER TWO	6
LITERATURE REVIEW	6
2.1 Introduction	6
2.2 As Built Survey	6
2.2.1 As Built Survey Data Collection	9
2.3 Unmanned Aerial Vehicle (UAV)	9