

PREFACE

The rapid advancements in aerial surveying and data acquisition technologies have revolutionized the way we gather and analyze geospatial information. This project report aims to present the methodology and results of a comprehensive study conducted on the corridor mapping of an existing Transmission High-Tension (HT) Line using drone-based data acquisition techniques. The primary objective of this project was to obtain accurate and detailed information about the HT line and its surrounding environment.

It begins with the selection of GCP locations, which are essential for ensuring accurate georeferencing of the acquired data. The ground control survey is described, which includes field measurements and the establishment of a reliable Horizontal and Vertical Control Network.

It covers various aspects such as point cloud data classification, including the classification of ground points for accurate terrain modeling. The creation of Digital Terrain Models (DTM) and Digital Surface Models (DSM) is explained, enabling a detailed understanding of the terrain and surface characteristics. The extraction of the power line from the processed data, along with top view and side view mapping techniques, is discussed. Furthermore, sag calculation and ground clearance assessment methodologies are presented, providing valuable insights for transmission line maintenance.

It begins with the pre-processing of the point cloud data, which includes rectification and cutting of the dataset based on the Area of Interest (AOI). The post-processing steps involve the classification of ground points, generating and analyzing the DTM, reclassifying power lines and towers, and analyzing the DSM. The results from top view and side view mapping, along with corridor analysis, are presented. Sag calculation methods are discussed, including calculations during installation and using point cloud data. The final data for transmission line maintenance and obstacle identification techniques, specifically measuring the distance from wires to obstacles, are also included.

This project report provides valuable insights and analysis for the corridor mapping of an existing Transmission HT Line, highlighting the importance of accurate data acquisition, processing, and analysis techniques. The results and discussions presented in this report contribute to the efficient maintenance and planning of transmission lines, ensuring the smooth operation and safety of the infrastructure.