

MAPPING OF PIPE UTILITY AND UNDERGROUND CABLE AT JALAN SUDIRMAN, DKI JAKARTA BY USING GROUND PENETRATING RADAR METHOD (GPR)

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ABSTRACT

Jakarta is the city of the Republic Indonesia and one of the largest cities in Indonesia. Jakarta as a business, political and cultural center becomes a metropolitan city on par with Singapore and New York City. There are development of science, technology and economy in the city of Jakarta makes Jakarta the main attraction by urban people. Important thing to realize the optimization of public service is by mapping the underground utilities of the city, for example is Jalan Sudirman in this research. One method that used is Ground Penetrating Radar (GPR). This method is non-destructive and has a high resolution to the dielectric contrast of the earth's material. GPR method is a geotechnical solution to get targets in the form of: pipes, cables and other utilities.

This research uses 16 data of GPR, there 9 data are run through the pavement and 7 data are cross the main street of Jalan Sudirman. 2D data processing using Reflex-w software and 3D modeling using Voxler software. Map is visualized by Autocad software.

Based on the results of data processing using GSSI SIR 3000 270 MHz, the amplitude of the electromagnetic wave is obtained below the surface. Utilities that appear on the radargram are cables, metal pipes and drainage. The utility will provide a positive amplitude response when it concerns the metal material and the negative amplitude response when it concerns a nonmetallic material. The depth of utility ranges from 0.2 meters to 2 meters below ground level.

Keywords : Amplitude, Ground Penetrating Radar, GPR, Utility.