

APPLICATION OF RESISTIVITY METHOD FOR ARCHAEOLOGICAL SITE INVESTIGATION

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A geophysical survey using geoelectrical profiling technique was conducted at Kg. Sg. Mas which has been gazetted by Muzeum Negara as one of the important prehistoric sites in Kota Kuala Muda district of Kedah. An earlier excavation work in this area uncovered many bricks and rocks of archaeological significance. The resistivity survey was carried out by the Department of Geology, Universiti Kebangsaan Malaysia to help the excavation programme in locating areal distribution and depth of the archaeological objects in the area.

The resistivity profiling method employing dipole-dipole array was performed using the ABEM SAS300 terrameter. An electrode spacing of 1 m was used with transmitter-receiver separation (N) ranging from 1 to 6 m. The measurements were made along ten parallel lines located 10-15m apart and covered an area with dimensions of approximately 100 x 100m. Each measured value was plotted at the intersection of two 45-degree lines through centres of the dipoles. The measurements resulted in the preparation of ten resistivity pseudosections and six isoresistivity maps. The maps show lateral distribution of the archaeological features where the depth below surface can be interpreted from the corresponding plotted pseudosections.

The isoresistivity maps for N=1, 2, 3 and 4 suggest that there are at least four anomalies of high resistivity or four probable locations of buried artifacts in the study area. The depths of the artifacts range from 1 to 2.5 m. Two or possibly five more anomalies are observed in the isoresistivity maps for N=5 and 6. These anomalies are possibly related to artifacts at depth of more than 3 m. Most of the resistivity anomalies coincide well with the locations of the previously excavated artifacts. These results demonstrate that the resistivity measurements can be successfully applied to locate archaeological artifacts in the study area.
