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Kolej Pengajian Kejuruteraan

E-NEWSLETTER

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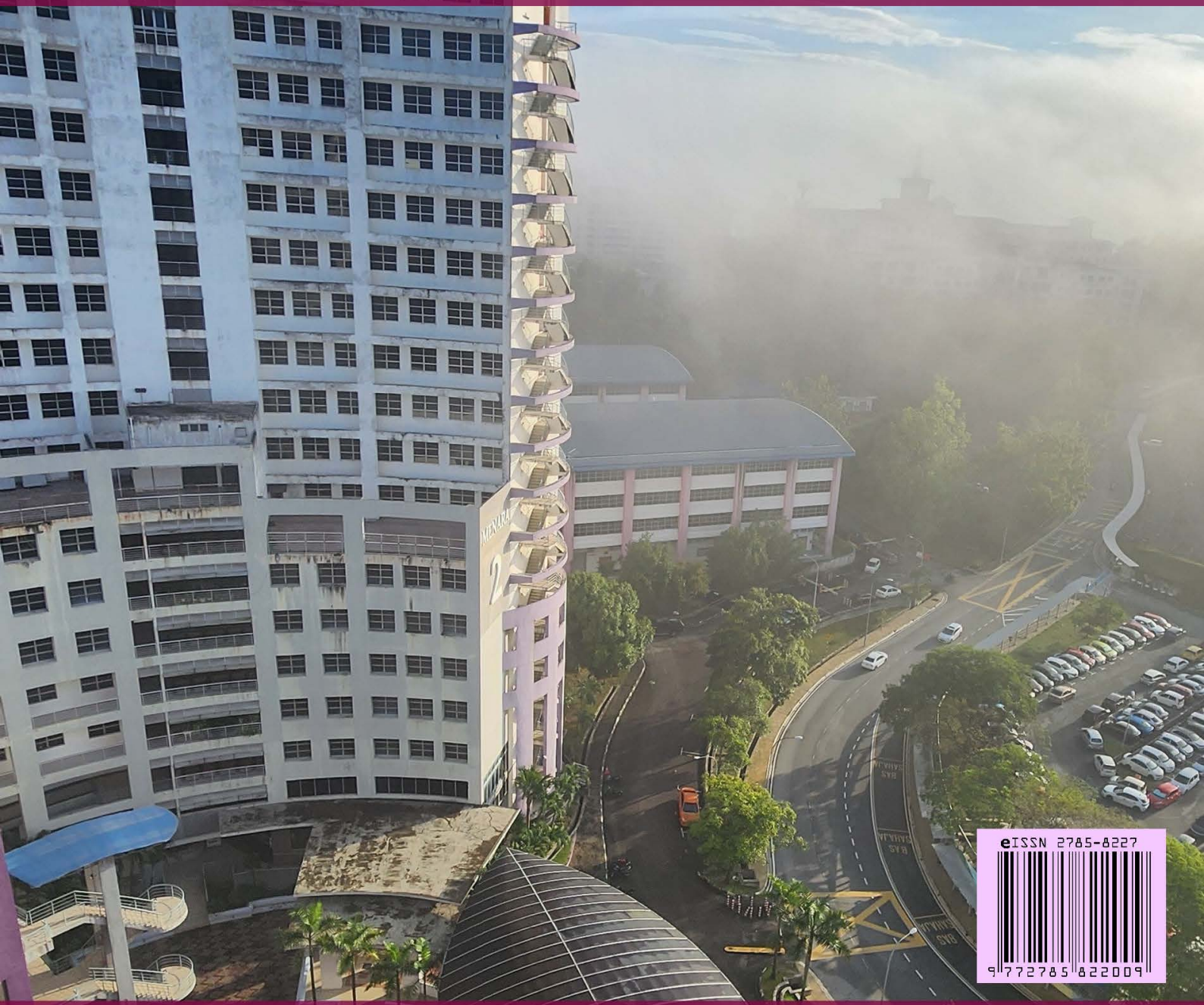

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KAJIAN KESAN LUBANG BENAM/PEMENDAPAN DENGAN MENGGUNAKAN KAEDAH GEOTEKNIKAL DAN GEOFIZIKAL DI SEBAHAGIAN JALAN PSK 2, PSK 4 DAN PSK 7 PUSAT PERDAGANGAN SERI KEMBANGAN, SELANGOR DARUL EHSAN.

Led by Associate Professor Ir. Ts. Dr. Adnan Derahman, a specialized team from the Geotechnical Forensic Specialized Initiative Group (GeoForenSIG) at the School of Civil Engineering, College of Engineering, UiTM, was engaged by JM BUDI RESOURCES to investigate settlement and sinkhole issues at an industrial park in Seri Kembangan. This expert team included Associate Professor Ir. Dr. Ismacahyadi Bagus Mohamed Jais, Ir. Ts. Dr. Abdul Samad Abdul Rahman, Ir. Noorfaizah Hamzah, Dr. Norazlan Khalid, Nur'ain Mat Yusof, Norazuan Imam Mahadi, Mohd Zarinnizar Afif Wahab, Muhamad Hazli Shariei, and Mohd Shahmir Mohd Said. Their work aimed to identify the root causes of the settlement and sinkhole, providing critical insights to support subsequent drain rehabilitation efforts.

The scope of this investigation encompassed a detailed geotechnical forensic analysis, utilizing both geotechnical (MP/JKR probe) and geophysical techniques, such as Electrical Resistivity Imaging (ERI), to accurately assess subsurface conditions. These advanced techniques enabled the team to construct a comprehensive understanding of the underlying causes of the sinkhole formation, offering a scientific foundation for remedial action. This investigation exemplifies the School of Civil Engineering's commitment to applying technical expertise to address critical infrastructure challenges and ensure public safety.

BACKGROUND OF THE PROBLEM

The commercial centre at Seri Kembangan has been reported to experience settlement near Jalan PSK 2, Jalan PSK 4 and Jalan PSK 7 as shown in Figure 1. The road and building experience settlement and voiding, causing dislocation and cracks of the drainage and culvert below the road. The contractor was requested by the Local Authority to repair the drains as there are dislocation and misalignment due to sinkholes developed underneath the buildings and roads, then appointed UiTM to undertake the geotechnical and geophysical investigation works.

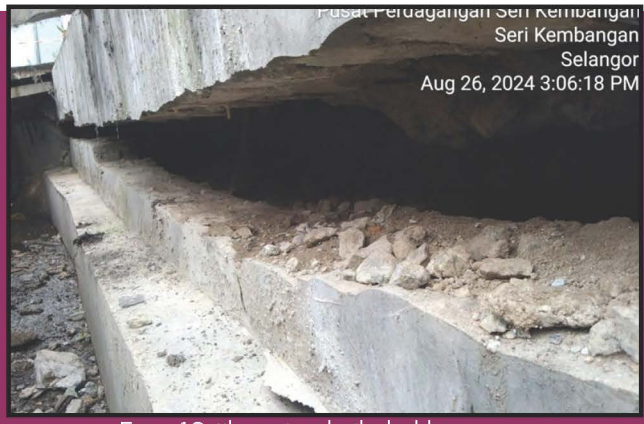

Figure 1 Settlement under the building

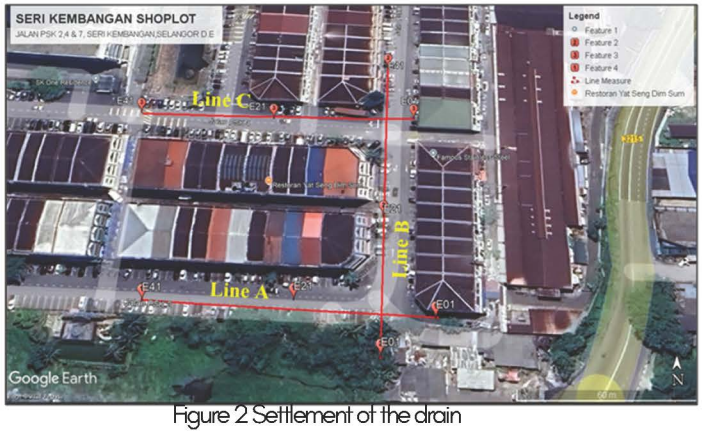

Figure 2 Settlement of the drain

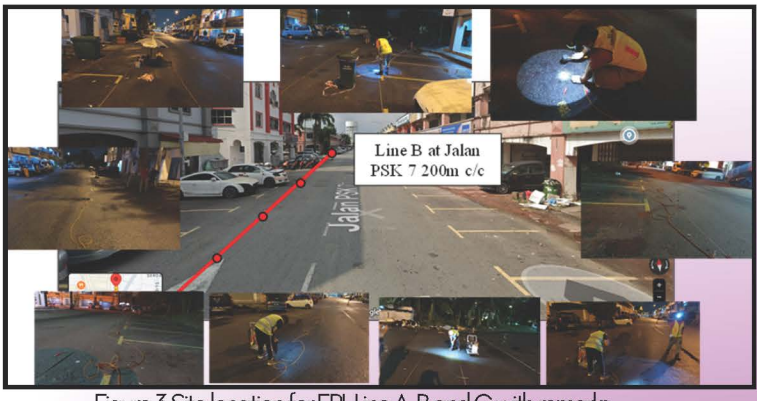

Figure 3 Site location for ERI Line A, B and C with remarks

GEOFORENSIC INVESTIGATION, METHOD OF ANALYSIS AND RESULTS

Electrical Resistivity Imaging (ERI) and MP/JKR Probe was used to evaluate the ground settlement in local scale at Jalan PSK 2, PSK 4 dan PSK 7, Pusat Perdagangan Seri Kembangan, Selangor Darul Ehsan. ERI and MP/JKR Probe results were used to interpret the condition of the problematic subsurface profile due to its differential stiffness. There are 3 lines of resistivity were used namely Line 1 for Jalan PSK 2, Line 2 for Jalan PSK 7 and Line 3 for Jalan PSK 4 and each line consists of 5 points of JKR Probe with a total of fifth teen (15) points of MP/JKR Probe carried out at the proposed site shown in Figure 3 to Figure 5, respectively. The site investigation works were carried out in accordance with the JKR specifications and guidelines.

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