

Geotechnical Evaluation of Sand from Khar River for Fine Aggregate Application: A Case Study in Gadap Town, Karachi

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This study aims to assess the suitability of sand sourced from the Khar River, situated within the vicinity of Kirthar National Park, Gadap Town, for use as fine aggregate in construction applications. Eight random samples were collected from various locations along the Khar River. A number of physical and mechanical tests, including fineness modulus (FM), specific gravity, water absorption, bulk density, soundness, and petrographic examination, were conducted on the collected samples. The results indicate that the average fineness modulus (FM) of the sand is 3.6, with a specific gravity of 2.5 and water absorption rate of 0.5%. The bulk density of the sand was measured at 1659.95 kg/m³. Petrographic examination revealed an off-white color and calcareous nature, with visible fossils present within the sand. Overall, the findings suggest that the sand from the Khar River is coarse in texture and may be suitable for use as a fine aggregate, particularly when blended with finer sand materials. This study contributes valuable insights into the geotechnical properties of the Khar River sand, informing decisions regarding its potential utilization in construction projects.