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FIBRE OPTIC INSTRUMENTATION OF VIBRO CONCRETE COLUMNS AND SURROUNDING GROUND FOR STATIC AND DYNAMIC LOAD TESTS

Summary:

Instrumentation of full displacement pile like elements – at Keller called as vibro concrete columns (VCC) – is practically impossible due to utilisation of heavy deep vibro technique during the production and absence of any steel reinforcement. Thanks to cooperation between Keller and Faculty of Civil Engineering of OTH Regensburg a special procedure for post-instrumentation was developed that allows for the axial strain measurement in VCC during the loading tests. The instrumentation comprises among others optical fibre components. The procedure has been deployed on a test site during static as well as dynamic load tests. There were two different types of instrumentation implemented according to art of the load tests. Further there were robust piezometers installed in the soil in advance next to the VCC that allowed for continuous pore water pressure measurements during the load tests. Purpose of the instrumentation deployed is above all to obtain data for effective design of VCC.

Key words:

axial strain, fiber optics, load test, piezometer, vibro concrete column

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