

Evaluation of Cast-in-Situ Pile Condition Using Pile Integrity Test

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Abstract : This paper presents a case study on a pile integrity test for assessing the integrity of piles as well as a physical dimension (e.g., cross-sectional area, length), continuity, and consistency of the pile materials. The recent boom in the socio-economic condition of Bangladesh has given rise to the building of high-rise commercial and residential infrastructures. The advantage of the pile integrity test lies in the fact that it is possible to get an approximate indication regarding the quality of the sub-structure before commencing the construction of the super-structure. This paper aims at providing a classification of cast-in-situ piles based on characteristic reflectograms obtained using the Sonic Integrity Testing program for the sub-soil condition of Narayanganj, Bangladesh. The piles have been classified as ‘Pile Type-1’, ‘Pile Type-2’, ‘Pile Type-3’, ‘Pile type-4’, ‘Pile Type-5’ or ‘Pile Type-6’ from the visual observations of reflections from the generated stress waves by striking the pile head with a handheld hammer. With respect to construction quality and integrity, piles have been further classified into three distinct categories, i.e., satisfactory, may be satisfactory, and unsatisfactory.

Keywords : cast-in-situ piles, characteristic reflectograms, pile integrity test, sonic integrity testing program

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