Development of a quality inspection technique for soil cement at pile tip in the pre-bored precast pile construction method

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For confirmation of the validity of construction of pre-bored precast piles, it is extremely important not only to confirm that the pile tip has arrived at the bearing stratum, but also to confirm the strength of soil cement in the enlarged base constructed at the tip of the pile.

With this technology the strength of the enlarged base at the tip of a pile can be estimated on a construction site within 1 hour with a simple chemical analysis of the material composition of the soil cement.

The major breakthrough of this technology is that it can be rapidly implemented on site without special skill, using a neutralization reaction. In addition, it has been shown that the estimation accuracy of this technology is higher than that of the conventional method of estimating the 28-day strength from the 3-day strength of the material. This technology was been verified on site in 80 projects, and it obtained certification of construction technology from the Building Center of Japan. Since then, it has been applied in more than 120 projects, where it has contributed to speeding up quality inspection, preventing problems, ensuring the quality of pile construction, and improving productivity.