4. Developing a Load Bearing Layer Detection System for Precast Piles - A New Approach to Confirming Arrival at the Load Bearing Layer during Pile Construction -

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The bored precast pile method generally involves using the integrated current value of the auger motor to indirectly determine arrival at the load bearing layer. However, when the N-value increases gradually, it can sometimes be difficult to clearly determine. The Load Bearing Layer Detection System was developed to identify the point at which the load bearing layer was reached by obtaining the N-value via a penetration test conducted at the auger bottom.

In this system, the penetration test for an assumed load bearing layer is carried out alongside integral current value measurement. Arrival at the load bearing layer is determined from the converted N-value obtained. Since this system incorporates the Electric Cone Penetration Test standardized by the Japanese Geotechnical Society, the N-value obtained should be highly reliable.

Performance verification showed this approach allows precise measurement of N-values and allowed quantitative determination of arrival at the load bearing layer. In passing, the verification showed it was necessary to exclude the loose zone at the bottom of the excavation hole from the evaluation.

Key words: bored precast pile method, load bearing layer detection system, electric cone penetration test