

## **Study on the Systematization of Semi-underground Structure Design**

In response to the 2002 Structural Reform Program for Public Work Costs, it has become necessary to reduce the cost and construction period of semi- and underground structures using conventional sheet piles and u-shaped or box-shaped retaining walls. Development of high-strength anchors (for instance, diameter-expanded anchor) solves these problems. Centrifuge model tests and full-scale test were conducted to reveal the pullout property of diameter-expanded anchor. The diameter-expanded anchors were developed in cooperation with five private organization companies, and their effectiveness was confirmed.

**Key Words:** *semi- underground structure, earth retaining, ground anchor, diameter-expanded anchor, pullout*