



Excavation



Reference Details:

Owner Japan Highway Public Corp., Shizuoka, Japan +++
General Contractor JV consisting of Sumitomo Mitsui Construction Co., Ltd. / Chuo P.S. Corp., Ltd., Japan

DSI Unit SUMITOMO (SEI) STEEL WIRE CORP., Tokyo, Japan

DSI Scope Supply of 19x0.6" External DYWIDAG Post-Tensioning Tendons type MC with epoxy-coated strands
Owner TEXT IN HERE +++
Engineer TEXT IN HERE +++
General Contractor TEXT IN HERE +++
Post-Tensioning Subcontractor TEXT IN HERE

DSI Unit TEXT IN HERE
DSI Scope TEXT IN HERE



Jet grouting with DYWI® Drill Hollow Bolt Anchors on the Tuscan coast

First-time use of the DYWI® Drill Hollow Bar System for a jet grouting application in Italy

For the very first time, the DYWI® Drill System was used in combination with the jet grouting method to extend a shopping mall in Viareggio on the Mediterranean coast, about 30 km from the world famous city of Pisa.

Since the shopping passage is directly situated on the beach promenade of Viareggio, a Tuscan resort in Italy, the ground water level was quickly reached when excavating the soil.

To erect a continuous diaphragm wall inside the excavation, vertical, slightly overlapping jet grouted columns were erected around the planned construction site.

To this end, the diaphragm wall was tied back in the soil using DYWI® Drill Hollow Bolt Anchors. Due to the poor ground conditions, the tie-back operation presented a special challenge. In addition, the anchors had to be very short due to the tightly built structures along the beach promenade. Therefore, very high mantle friction values had to be achieved during the installation of the DYWI® Drill Hollow Bar Anchors.

The solution to that problem was a combination of the DYWI® Drill Self-Drilling System and the single-phase jet grouting system. The soil was grouted with a pressure of 400 bar during drilling, which resulted in a very large grout body diameter and a very high mantle friction.

Standard DYWI® Drill Hollow Bar Anchors of diameters R32 and R38, which were provided with special couplers and drill bits for that application, were used for the high-pressure jet grouting activities.

The DYWI® Drill Anchors were installed as scheduled and thanks to the jet grouting method, the anchor loads could be transferred into the ground without any problems despite the short anchor length. The close cooperation between DYWIDAG S.P.A., DSI's Italian subsidiary, and the Technical Service Department in Munich, Germany, on one hand and the Italian jet grouting specialists on site on the other hand was the basis for the successful installation of the DYWI® Drill Hollow Bar Anchors in Viareggio, Italy. In addition to the supply of the DYWI® Drill Hollow Bar Anchors through DYWIDAG, DSI's services included technical assistance and supervision of the installation work.