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INNOVATIVE DESIGN FOR RETAINING STRUCTURES USING COMBINED PRODUCTS

Summary:

The execution of deep basement excavations under narrow conditions is one of the most challenging tasks in geotechnics. The vicinity of neighbouring buildings, roads, and underground structures such as sewers or power lines, quite often prohibits the application of standard solutions. In addition, legal considerations in the use of adjacent properties is becoming increasingly difficult. This paper presents some innovative approaches to overcome the above-mentioned challenges based on several case studies from central Europe. For every project the design approach as well as the techniques used for execution will be explained, detailing both the advantages and the limitations of the applications. One case study shows a deep basement excavation (approx. 17m) in the centre of Prague, Czech Republic. This project featured many challenging boundary conditions (narrow construction area, high ground water table, jet grouting column embedment into bedrock, constraints regarding use of ground anchors due to property rights, etc). The realisation of the complex design is described and illustrated in detail. Other case studies show the combined application of bored piles with jet grouting and also explain the design of vertical prestressed anchors for retaining walls.

Key words:

Innovative design, deep excavation, retaining structure, jet grouting

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