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Dipartimento di Georisorse e Territorio



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MECHANIZED TUNNELLING: CHALLENGING CASE HISTORIES

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GEOLOGICAL RISK SHARING IN UNDERGROUND WORKS ACCORDING TO THE SWISS CONDITIONS OF CONTRACT – The Gotthard base tunnel's TBM headings

Abstract

The sharing of geological risk between the employer and the contractor is paramount in any underground works contract. The description of ground conditions by the owner enables the contractor to plan his equipment and procedures, and is an important factor in the estimation of the job, and, in the end, the contract itself. While in most contract systems worldwide geological and geotechnical parameters are of the essence in ground description, the Swiss conditions of contract for underground works emphasize rather the influence of the ground on production, i.e. the resistance the ground opposes to drilling, wear and tear of the drilling gear, obstacles to be dealt with such as water or fault zones in hard rock, and the quantity of supporting elements such as rock bolts, wire mesh, steel support or shotcrete needed to provide safe conditions as close as possible to the tunnel front. The Gotthard base tunnel in Switzerland with its 57 km is the world's longest tunnel, and its construction is well under way. Relaying southern Germany with northern Italy it will provide a high speed rail link underneath the Alps. From the south portal in Bodio, Ticino, in each of the two headings more than seven km have been drilled to date, and several interesting features of this largest construction site in Switzerland can be presented, amongst which experiences with the two hard rock TBM, and the way of dealing with key data by innovative approaches.