Why Liability Is Different Underground

By Vinson & Elkins Partner Scott Stiegler and Vinson & Elkins Associate Ellen Swarbrick

Scott Stiegler, Partner, Vinson & Elkins

Ellen Swarbrick, Associate, Vinson & Elkins

1994 saw what England's Central Criminal Court described as "one of the worst civil engineering disasters in the United Kingdom in the last quarter of a century" when a tunnel collapsed during construction of the Heathrow Express. Buildings were damaged and London Underground lines were put at risk, with a record fine of £1.2 million imposed on top of repairs costing £150 million – triple the projected cost of the overall project. This potentially unquantifiable risk is why precision matters in underground projects, yet engineering plans can sometimes only be based on limited data. This can result in unacceptable levels of uncertainty that, for a while, discouraged some insurers and lenders from providing suitable backing.

In the decades since the Heathrow tunnel collapse, industry practice has moved decisively towards restoring confidence in underground projects. But as scales expand, technology advances and environmental ambitions grow, the core tension remains: who bears the consequences when actual ground conditions depart from expectations?

Geotechnical Baseline Report as an anchor for risk allocation

Due to the number of potential unknowns, additional investigations and resources are typically spent on initial feasibility studies for underground projects. Depending on the contractual structure, one of the more usual documents produced is a geotechnical baseline report (GBR). A GBR works alongside the contract as it sets out a baseline of foreseen or assumed ground conditions against which claims for unforeseen conditions can be measured and assessed. For mega-scale cross-border tunnels, a GBR is sometimes augmented by phased works and exploratory tunnels to narrow the margin of error.

The Lyon–Turin high-speed railway illustrates this phasing approach. Linking the Italian and French high-speed networks, the railway will cross the Alps through the Mont d'Ambin Base Tunnel, with initial feasibility studies commencing in 1990. 32 years later, Saint-Martin-la-Porte 4 (SMP4) was completed; the last in a series of exploratory tunnels built to improve knowledge of the complex alpine conditions. SMP4 successfully crossed a large fault zone with high squeezing rocks, using innovative yield-control support systems that had been developed from years of data collected at site. These methods of reinforcement can now be deployed at scale on the main project. The Mont d'Ambin Base Tunnel demonstrates that increased upfront investment in feasibility studies can sharpen the baseline against which risk and responsibility are allocated, allowing parties to focus on successful delivery.

Balancing risk between the contractor and project owner

Standard form contracts tend to start with a more balanced risk approach for underground projects. In reality, however, provisions around the allocation of risk and responsibility for unforeseen ground conditions are always heavily negotiated. There are also a number of ancillary provisions which form part of this negotiation process, including the ability to investigate the site, the provision of information, what information can and cannot be relied upon and other adjacent provisions, as well as any duties that may be inferred or implied as a matter of law, such as a duty to self-inform for example.

The M6 Stage 1 Motorway project in Sydney underscores the importance of considered risk allocation. The project suffered two major subsidence events at the site in March 2024. Even with a strict liability transfer clause in place, the contractor consortium, CGU, claimed it had encountered a complex faulting zone never previously observed in the Sydney basin and, in May 2025, purported to treat the contract as "frustrated" and "terminated by operation of law". Meanwhile, the state's roads minister reiterated that "all aspects of construction delivery are the responsibility of the contractor" and issues "need to be dealt with by the contractor according to the contract" and Transport for New South Wales was considering its "position in relation to the contract given the unilateral steps taken by CGU". In July 2025, the parties agreed measures to maintain security and safety of the tunnelling construction sites while additional studies were being undertaken.

Whether this project is a good example of considered risk allocation or not remains to be seen.

Swapping standard form clauses for bespoke risk-sharing mechanisms

Parties should practice caution with standard form contracts, and best practice dictates that parties should tailor any contract to suit the specific needs of the project and the parties. Such an approach was taken with the UK's Silvertown Tunnel project. In the Design and Build contract, costs for select unforeseen ground conditions were carved out, with Transport for London (the project owner) being liable for a certain share of related costs. Transport for London's liability was carefully limited, for example, through an exemption for the first tranche of delay days per event (up to an overall aggregate cap), including per-event floors on direct costs and a global deductible that had to be exceeded before cumulative costs were shared, as well as including reductions to reflect insurance and mitigation. Whilst this was a complex framework, it was nevertheless something which had some considered thought go into it.

Factoring the mechanism into the

overall price allows risk to sit with the party best placed to manage it (and paid to do so) but also the party that will benefit the most from having it effectively managed.

Necessity of agile decision-making and tiered dispute resolution

Unforeseen ground conditions in underground projects often demands rapid, site-level decision-making to ensure projects progress at the rate promised. Good contracts permit flexibility and provide a clear pathway to resolving issues without paralysing progress. The Gotthard Base Tunnel offers such an example. The Gotthard Base Tunnel contract contained a tiered dispute resolution mechanism, in which conflicts were attempted to be resolved first at construction site level, before progressing through each tier and ending up with a decision from a pre-agreed advisory Arbitration Commission. Such an approach is a modification from a similar tied approach taken in FIDIC contracts.

Given the technical nature of the disputes that often arise in underground ground conditions claims, having an aspect of the dispute resolution process that involves an independent technical expert assessment, for instance, is becoming increasingly common. Such an approach can bring with it efficiency in determination of the technical issue and may also assist in driving appropriate solutions.

Thinking about liability from the outset

The only certainty in underground projects is that unforeseen ground conditions will very likely arise. Disputes are avoided and projects succeed when uncertainty is confronted early, priced transparently and if such unforeseen ground conditions do arise during the course of the project, they are handled in an effective manner.

In the next article of this series, we will explore the common challenges encountered during delivery of underground projects. The series will conclude with a final article focused on procurement strategies and how parties can safeguard their interests through effective contract provisions.

References

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