# The State of DRB's in the Tunnel Industry

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**ABSTRACT**

Dispute Review/Resolution Boards (DRB's) are a highly successful dispute avoidance and resolution tool. In a joint effort between the UCA of SME and the Dispute Resolution Board Foundation (DRBF), the authors embarked on an informal assessment of the state of the DRB practice in the tunnel industry from the point of view of the Contractor, Owner, DRB Practitioner, and Attorney. The results of this assessment were presented in a panel discussion at the Rapid Excavation and Tunneling Conference (RETC) in June of 2021. This paper presents the results of that session with recommendations for further industry discussion and implementation

**INTRODUCTION**

Recently the UCA entered into an agreement with the Dispute Resolution Board Foundation (DRBF) to work collaboratively on subjects of importance to both organizations. One of the first initiatives entailed forming a 4-person "Underground Industry" panel consisting of an Owner Agency Representative, Contractor, DRB Practitioner and Attorney. The authors of this paper made up that panel and were charged with informally polling their peers on the state of the DRB process for underground projects. In June of 2021 the panel met and presented their perspectives (and those of a select group of their peers) at the UCA's Rapid Excavation and Tunneling Conference (RETC) at Caesar's Palace in Las Vegas, Nevada.

After the RETC conference, the authors (and the UCA and DRBF) broadened the scope of this exercise by providing an on-line survey to let others in the industry make their opinions heard. The survey results were not fully available at the time of this writing but can now be found on both the DRBF and UCA websites. A link to the results will be provided at the conference in June of 2022.

This paper summarizes the RETC panel presentation and incorporates some of the discussion that ensued afterwards. Readers are encouraged to consider the positions put forward in this paper in conjunction with the results of the survey which obviously represent a larger snapshot of the Underground Industry.

**THE OWNER'S PERSPECTIVE (Joe Gildner, Sound Transit)**

Over the past two decades, Sound Transit has successfully completed four major transit extensions that include 7-½ miles of twin bore tunnels, 5 subway stations, 47 hand-mined cross-passages, and approximately ½-mile of a single-bore tunnel. The five included tunnel contracts have a combined contract value of $1.3+ billion dollars (minus 4 subway stations procured separately) and all five were completed on time and within budget. To date, all of our tunnel contracts have been delivered using design-bid-build.

We have developed a robust risk register program that spans the life of a project. The late Al Matthews once said that Owners don't share risk; rather owners allocate risk. To this end we have identified a number of consistent high-risk factors requiring attention in the development of our contract documents to frame risk allocation measures. These include:

- Market risks;
- Subsurface risks;
- Third-party risks;
- Multiple contractor interfaces tied to defined milestones;

- Civil Facilities/Systems integration *(design, construction, testing)*; and
- Testing & Commissioning/Safety Certification.

For underground work, we recognize one of our top risks is the timing of contract solicitations with respect to market conditions, i.e., judging both the interest and availability of qualified contractors. The contract delivery method together with the contract provisions and estimated cost typically dictate the number of bidders and the team configuration (single entity or joint venture). Similarly, the scope and terms of the contract tie directly to the bidder's ability to provide the specified key personnel, equipment, and specialized management resources to effectively oversee and prosecute the work.

Subsurface risks are also at the top of the risk register until the work is complete. We recognize the complex nature of the soils in the Central Puget Sound region, and that these conditions present the greatest source of unknowns. Our goal is to determine the nature of the subsurface formations and assess how they will likely behave during the planned construction activities. For each tunnel contract, we provide a Geotechnical Baseline Report (GBR) to assist the Parties in resolving disputes related to differing ground conditions as compared to the contractor's assumptions/assessments at time of bid.

We recognize the potential for disagreements regarding the interpretation of contract documents with respect to the key risks. We also recognize that it is in everyone's best interest to avoid or resolve disputes before they can escalate, and so we have always included provisions for the use of DRBs coupled with executive-level Partnering as best practices in the implementation of our change order process. We typically couple quarterly Partnering and DRB meetings back-to-back to optimize the effective use of these two different yet complementary processes. Our Agency's strategy to closely align the Partnering and DRB processes has been featured in an article sponsored by the DRBF in their periodical, *Forum*[1]

In addition to GBRs and DRBs, our Contracts include requirements for Escrow Bid Documents (EBD). The availability and joint review of these documents complements the Parties' good-faith negotiations and determines the quantum to support a fair and reasonable resolution in complex disputes. These three provisions (GBR, DRB, and EBD) are complementary and provide fairness in the contract which, we believe, is favorably viewed by the underground construction industry when deciding to bid our projects.

**Alternative Dispute Resolution**

Over the past two decades we have resolved contractual disputes using a variety of alternative dispute resolution (ADR) processes including DRBs, mediation, and arbitration. To date, our Agency has contracted over $10 billion in regional transit investments and have not used litigation to resolve a post-award commercial issue for any of our construction contracts. We have found that the use of DRBs is one of the most effective overall ADR processes to avoid and resolve contractual disputes. This aligns with many industry findings provided by the DRBF:

- The DRB process is the only process that enables the Parties to engage in dispute *prevention* as well as resolution;
- The DRB process is the only ADR process that runs concurrent with the contract from beginning to end;
- DRBs monitor key project indicators and address potential disputes as they arise, facilitating communications between the Parties, encouraging cooperative problem solving and decision making;
- Regular quarterly DRB meetings promote open communications and collaborative behavior that helps preserve contractual relationships;
- The DRB process promotes expeditious dispute resolution while the work is proceeding, allowing field staff to remain focused on project delivery;
- The DRB process is based on factual contemporaneous contract documentation and applicable law; and

- The DRB process is still one of the most cost-effective means of resolving disputes. We have found that, in general, the carrying costs of a DRB relative to the contract amount is in the range of 0.1 percent of the overall contract costs. This is consistent with DRBF findings in the range of 0.05 percent to 0.15 percent.

**Essential Provisions for an Effective DRB Process**

Sound Transit implements best-practice DRB guidelines within our Contract Documents: the DRB specification; the DRB Three-Party Agreement; and DRB Operating Procedures. These frame the dispute avoidance/resolution regime and define the roles/functions of the DRB.

***DRB Specification***
Key DRB provisions in our General and Special Conditions include:

- DRB recommendations are not binding on either Party and are admissible in subsequent dispute resolution proceedings.
- The Parties enter into good-faith negotiations to settle a dispute using the Dispute Escalation Process, before referring such disputes to the DRB.
- If unable to resolve a dispute using the Dispute Escalation Process, and if the claim is over $250,000, the dispute is referred to the DRB as a condition precedent to mediation.
- DRB members must be experienced in the interpretation of the Contract Documents and the resolution of construction disputes and in the type of construction to be performed.
- DRB qualifications are in strict compliance with all experience and disclosure requirements (emphasis on eligibility and impartiality tied to past/present direct employment, consulting assignments, financial ties, and close personal or professional relationships).
- Parties to meet and discuss the required DRB qualifications**.** For tunnel contracts, we prefer one DRB member have relevant geotechnical or engineering geology experience. (In addition, we prefer that prospective nominees have completed the applicable DRBF-certified training).
- Parties to follow specified timelines to solicit information from prospective candidates and jointly agree on the final selection of three DRB members, reserving the right to jointly interview candidates as part of the selection process.
- If the DRB Chair has not already been appointed as part of the selection process, then the Board members nominate the Chair requesting approval from the Parties.
- The specified formal dispute resolution process includes provisions on: a) dispute referral; b) pre-hearing submittals; c) the conduct of the hearing; d) DRB action upon failure of Party to prepare pre-hearing submittals or attend the hearing; e) use of outside experts; and, f) the DRB report (including provisions for clarifications and/or reconsiderations, and how the Parties are to accept or reject the DRB report).
- The DRB process allows for advisory opinions as a method for potentially avoiding a DRB hearing.

***Three-Party Agreement (TPA)***
We use the TPA recommended by the DRBF (which complies with our DRB specifications) including: descriptions of the DRB scope of work; responsibilities of the Parties; timeline for all DRB activities; payment provisions; confidentiality and recordkeeping requirements; termination procedures; legal relations; and disputes regarding the TPA.

Regarding terminations, there are specific clauses that state:

- The TPA may be terminated by mutual agreement upon no less than four weeks' written notice;
- Individual DRB member may be terminated only by agreement of both Parties; and
- If a DRB member resigns, is unable to serve, or is terminated, then he or she shall be replaced within four weeks using the same joint selection process as before.

Regarding legal relations, there are some specific clauses that state:

- DRB members shall not participate in subsequent dispute proceedings;
- To the fullest extent permitted by law, each DRB member shall be accorded quasi-judicial immunity for any actions or decisions associated with DRB activities;
- Each DRB member shall be held harmless for any personal or professional liability arising from or related to DRB activities; and
- To the fullest extent permitted by law, the Parties shall indemnify and hold harmless all DRB members for specific losses arising out of or related to DRB members carrying out DRB activities.

***Operating Procedures***

Once the DRB is selected, the DRB and the Parties promptly work together in establishing the written Operating Procedures (OP) for all DRB activities. The OP are intended to be fair, flexible and consistent with the best practices and ethics promulgated by the DRBF.

**THE CONTRACTOR'S PERSPECTIVE (Michael Roach, Traylor Brothers)**

Contractors see and appreciate DRBs for what they are (or should be) at the contractual level – a deterrent. They should deter owners and their representatives from withholding reasonable relief for construction disputes and claims. Similarly, DRBs should deter contractors from bringing forward weak or frivolous claims. Let's examine the second side of this coin, as it is the simplest to explain from a contractor's perspective.

Any reasonable contractor should recognize that the inclusion of a DRB process within their contract will be a check on meritless assertions. Most of us know of, or have heard of, a contractor peppering their client with numerous allegations to "keep throwing stuff at the walls to see how much of it sticks." Perhaps they feel that they can wear down their 'opponent' to a point that they simply give in. We rarely hear of these situations nowadays, as DRB members and the process itself prevent this from happening. That part of the deterrent message seems to have gotten through.

It is worth noting that contractors are generally not flocking to DRBs for reasons beyond the 'deterrent message.' It is costly to bring an issue before a DRB in a full hearing with comprehensive position papers, consultants, and the near-professional presentations we see today. This takes resources away from a project and takes attention away from the actual construction. For these reasons and more, contractors try to avoid DRB hearings through other means, such as partnering and old-fashioned common sense.

As stated above, for contractors, the primary purpose for having a DRB and resolution process is to help prevent owners from withholding or avoiding reasonable relief for disputes and claims. Today, contractors expect to see this level of "protection" in their underground construction contracts. Based on the limited survey results available at the time of this writing, most contractors prefer pursuing contracts that include DRB provisions, yet they say that this has no bearing on their bid pricing, and few would be dissuaded from bidding a project that did not include such provisions. The mixed message that this sends to owners is, "Yes, we want DRB provisions, but it doesn't matter if we don't have them." This is interesting because some in the industry don't believe that owners want DRBs as part of their contracts and only include them to attract contractors. If that were true, one would expect the contractors' survey responses to reflect that belief. This is worthy of a deeper discussion within the industry.

The question of whether DRB determinations should be binding on both parties has always been a point of contention. Two recent surveys contain different opinions on this question. An informal survey of contractors prior to the RETC Panel Discussion found two thirds of respondents in favor of binding determinations. The more recent UCA/DRBF industry-wide survey shows a majority in favor of non-binding decisions. This is also worth a deeper discussion within the industry, but perhaps the mixed results can be explained by the following:

1. The earlier survey was of contractors only. Perhaps contractors simply want disputes settled, period, and since the DRB process is in place they are willing to put their faith in the DRB process and accept a binding decision to settle the dispute
2. Perhaps there is confusion between the typical North American Practice and the International Federation of Consulting Engineers (Fédération Internationale des Ingénieurs-Conseils, or FIDIC) procedures elsewhere.
3. Perhaps owners only want to adhere to decisions that agree with their position, and they need non-binding decisions for this?
4. Does much of the industry (as far as the survey sampling goes) only believe in the process when they 'win?'

Each of these is worthy of additional discussion larger than the scope of this paper. Notable here is that there remains a division within the underground construction industry with respect to basic disputes resolution processes.

One aspect of the DRB process that the industry seems to agree on is that recommendations should be admissible in subsequent dispute resolution processes or litigation. From a contractor's perspective the reason for this is simple – money. It can be expensive to prepare and proceed with DRB hearings. Recreating that effort, at attorneys' hourly rates, is an undesirable proposition.

A basic premise of dispute resolution by DRBs is to solve issues at the project level and keep the lawyers away. Lawyers are expensive and can extend any resolution process by months or years. So why would 30% of contractors feel that attorneys should participate? If contractors are going to bring their lawyers, owners are surely going to do the same. Fairly quickly you find that the aforementioned premise has been tossed out the window and your DRB hearing is now a rehearsal for litigation. Some say that attorneys should participate, as many disputes revolve around legal and/or case law issues. The problem with that argument is that you are now putting DRB members in a position to act as a judiciary – areas where most are not trained. DRB determinations based on members' interpretation of law are headed straight for appeal, rejection, and a more time-consuming and expensive resolution process. An owner once told this author that to agree to binding DRB determinations, they would insist on having their attorneys actively participate in the hearings. This doesn't sound like dispute resolution. It sounds more like cut-rate litigation that still places DRB members in the role of the judiciary.

DRB provisions alone are not enough to make ~~the make~~ the process work. Too many contracts contain provisions designed to either prolong or essentially prohibit access to the dispute resolution process. Such clauses require numerous owner-controlled procedures to be exhausted prior to the contractor requesting a DRB hearing, thereby delaying any resolution process by several months or years. The appearance of these "delay tactics" in the contract may lead contractors to include additional costs or contingencies to their bids if they sense the owner will be non-responsive to legitimate issues. The parties can't take advantage of the dispute resolution process if they don't have reasonable access to it. Contractors want clear access to the process, if needed.

Note that a fundamental role of a DRB is dispute avoidance. Often the mere presence of a DRB is enough to discourage frivolous claims. Regularly scheduled onsite meetings with DRB members are also essential to dispute avoidance. Boards can and do provide guidance to the parties for prompt issue resolution at the lowest and least expensive level – the project.

There is reluctance to fully adopt the role and objective of DRBs by some in the underground construction industry. This reluctance is shared by the contracting community; it is not all on the owners and their consultants. Several relevant concerns of contractors have been discussed above. Owners have similar relevant concerns. The underground construction industry continues to approach the topics of dispute avoidance and resolution in mostly self-serving terms. Each owner chooses the aspects of the process that they want. Where and when they can, contractors push for the provisions that suit their comfort levels or risk appetites. As an employee of a national tunnel contractor, this author reviews several claims and

dispute avoidance/resolution contract provisions each year. No two are the same. Many are similar, but each has the owner's opinion on the matter clearly written between the lines. The survey results show much common ground on this topic. But there remain many areas of process disagreement between owners and contractors. Adoption of a single standard would be of immense value to the industry. A lofty proposition to be sure. Yet the implementation of certain consistent tenets would be beneficial to owners and contractors alike.

**DRB PRACTITIONER'S PERSPECTIVE (Fred Dunham, Dunham Consulting Services)**

The Dispute Resolution Board Foundation has been an effective and positive addition to the construction industry since 1996. It was founded based on the idea of promoting and educating stakeholders in the field of construction and other industries in the use of DRBs as an alternative dispute resolution (ADR) method. DRBs differ in their operation from other ADR methods in that they are formed at the outset of a project, accompany the project, and are considered part of the project team. The primary role is to promote dispute avoidance and the secondary role is dispute resolution. Over the years, the DRBF has continued to change and improve in order to best suit the needs of the owners and contractors; this is reflected in the latest (and ever evolving) DRBF standards and practices. My input on the state of DRB practice follows:

**Misuse of DRB's**

As a DRB practitioner, there are concerns regarding the manipulation and misuse of some individual boards. There are occasional owners and contractors who favor the use of DRBs but have different ideas as to the Board's role and how it should function, and in effect using and restricting the performance of the Board to suit their own purpose. This approach can seriously render a normally qualified and experienced DRB ineffective. This restrains good Board members from their established role of dispute avoidance and even dispute resolution.

**Suggested improvements for DRB performance**

***DRB selection.*** Currently there are several methods of DRB selection most of which are considered flawed for various reasons. Example: The owner and contractor each select one member and the two members select a third which typically becomes the chairperson. Each party refers to the DRB member they selected as "their person." This can lead to a suspicion of impartiality and trust. A preferred method is for both owner and contractor to present a short list of candidates. The Parties meet to select three members from the lists. The selected three can then pick the chairperson. For selection of a single dispute advisor the method could be the same.

***The importance of people skills.*** An important skill for active DRB members is to be able to "read the room." It's important to observe and understand representatives from all parties. Understanding the personalities helps gain their confidence. Learning how to respond to different personality types is also important.

***Showing respect and compatibility.*** All DRB members should act with the highest level of professionalism and ethics. Respect the process and each other. This will be returned in kind with respect from the owner and contractor.

***Always strive to be unbiased.*** With your conversation and actions build trust and show impartiality. If there is a remote chance of conflict of interest or ethical issue, bring it up immediately to the owner and contractor and let them decide if it is acceptable or if you should recuse.

***Support the Chairperson but do your part.*** The Chair has a heavy load at times. They should not take on the burden alone. As a fellow DRB member, offer to share the load. It may be a learning experience for you. As chairperson trust in your partners and delegate tasks.

***Be prepared and devote adequate time.*** A DRB member will be given a lot of information to digest in the duration of a lengthy project. Everything from initial contract documents and drawings to weekly and/ or monthly reports will consistently be sent to you. As the project advances the sheer amount of data will

increase. When you are involved with calls, meetings, or disputes, always budget time to review all you can and be prepared. You will be more proactive rather than learning everything for the first time.

***Taking on too much.*** Many DRB practitioners take on too many projects. A demanding schedule for more projects than you can handle means:

- You can't reasonably schedule the meetings and activities.
- You don't have adequate time to review and stay current with project information.
- You require your fellow members as well as the project team to adjust unfairly to your schedule.
- If extraordinary activities occur on the project you can't be readily available and that hurts the project.
- This excess load is the prerogative of the member and no one wants to stop anyone from making a living, but you could be hurting the process.
- A recommendation to the owners and contractors: interview candidates and ask about workload and availability prior to finalizing selection.

***Help avoid hearings.*** The best service you can provide is Dispute Avoidance. Work hard at convincing both Parties to continue dialogue and point out how there may be options they have not considered. Advise the Parties of the cost in having a hearing with personnel dedicated to the hearing preparation, the additional costs for the DRB and hearing participants, and the miscellaneous cost to conduct the hearing versus further negotiations. Although the DRB members may make more money, do not let that be a factor for promoting a hearing that nobody wants.

***If there is a hearing, stick to the contract.*** Be sure and require both Parties to formally describe the issue(s) that are to be addressed for the hearing and specifically what the Parties expect the DRB to consider. Avoid ruling on what you might think is fair or what you might have done. Be aware of the contractual responsibilities of the owner and contractor to each other and make a recommendation based on facts and the contract.

**Advice to owners and contractors**

Always follow the DRBF guidelines in putting together and dealing with a DRB. Don't withhold information from your DRB. Allow them to do their job and be an integral part of the project team. Remember, a successful project with a DRB in place is one where they are active and involved.

**Advice for DRB practitioners.**

If you are serving with more senior members, listen and learn. If you are a senior member, share your experience and be a good mentor. For all active DRB members, enjoy the experience. It can be very rewarding.

**ATTORNEY'S PERPECTIVE (David Hatem, Donovan Hatem LLC)**

An essential aspect and attribute of the DRB Process – one that distinguishes that process from other dispute resolution processes (such as litigation or arbitration) – is the ability and availability of the DRB to proactively assist the parties in dispute *avoidance*. The DRB provides genuine opportunities to assist Parties in anticipating and avoiding Disputes before they arise or require resolution. *No other Dispute Resolver – Judge, Jury, Arbitrator, or Mediator – provides those opportunities.*

Are there good reasons for the DRB to wait for a dispute to arise and be formally presented before learning, understanding and providing input to the parties concerning the relevant contractual risk allocation expectations of the Parties? Perhaps not. A substantial number of disputes that arise on tunnel projects involve certain fundamental and repetitive themes that often can and should be anticipated by the Parties and avoided, managed or mitigated by their invocation of proactive and timely input of the DRB *prior to* the occurrence of a dispute. Parties to DRB Agreements should consider increased utilization of DRBs in dispute *avoidance.*

**Confronting the Reality: Tunnel Projects are Dispute-Prone**

Disputes on major subsurface projects, realistically, are to be expected. What should reasonably be expected of DRB members *prior to* any Dispute submission?

- Be regularly and timely informed as to project status and issues
- Understand the contractual risk allocation expectations of the Parties
- Be prepared to realistically, timely and effectively communicate to the Parties as to reasonable interpretations of relevant contractual risk allocation provisions and other contractual provisions relating to design and construction roles, responsibilities and risks so as to avoid Disputes.

The FIDIC *Emerald Book*[2], Sub-Clause 21.3, contemplates such a role for the DRB (which they refer to as a Dispute Avoidance and Adjudication Board or DAAB): *"If the Parties so agree, they may jointly request (in writing, with a copy to the Engineer) the DAAB to provide assistance and/or informally discuss and attempt to resolve any issue or disagreement that may have arisen between them during the performance of the Contract. If the DAAB becomes aware of an issue or disagreement, it may invite the Parties to make such a joint request.*

**Fundamental and Common Areas of Disputes on Tunnel Projects**

The three principal, predominant and predictable drivers and sources of Disputes include:

(1) Subsurface Conditions Risk Allocation. Disagreements regarding the interpretation and/or applicability of provisions of the Contract Documents in the context of anticipated site conditions expected to be encountered in the performance of the work.
(2) Design: Roles, Responsibilities and Risks. Disagreements as to Owner and Contractor roles, responsibilities and risks relative to permanent project work, i.e., prescriptive work vs. performance specifications. What is the Preparer's Role and Responsibility? What is the Reviewer's Role and Responsibility? What is the Contractual Status of Approved or Accepted Submittals?
(3) Construction Means/Methods and Equipment Selection: Roles, Responsibilities and Risks. Disagreements as to Owner and Contractor roles, responsibilities and risks relative to temporary works, i.e., Construction Means/Methods, Equipment Specification, Selection and Procurement. Is this at the complete and exclusive discretion of the Contractor? What about Owner Performance specifications, suggested means and methods, and/or prescriptive design requirements for temporary works? What is the contractual status of approved or accepted submittals? What is the responsibility of the submittal preparer vs the submittal reviewer?

These three areas represent the more frequent sources of disagreement between owners and contractors leading to Disputes on underground projects. In many instances the seeds of these Disputes are planted in how relevant contract terms are articulated relating to these three areas or how the primary project parties are conducting themselves, or plan to conduct themselves, relating to these areas. Many of the sources of disagreement reasonably could (and should) be anticipated prior to the occurrence of any Dispute.

The Parties would benefit in most instances by requesting and obtaining input and guidance from the DRB as to these three areas *prior to* the occurrence of a Dispute. The goal, naturally, is to *avoid* Disputes or to manage and mitigate their impacts by proactive engagement of the DRB.

**Increased Opportunities for DRB Role in Dispute Avoidance**

Can and should Parties enlist greater proactive engagement of the DRB in proactively anticipating and assisting the Parties in avoiding or mitigating potential Disputes? Should the DRB process afford the Parties the opportunity to discuss and obtain from the DRB informal and non-binding input on anticipated sources and areas of anticipated disputes? Most seem to agree that utilization of a DRB in a dispute *avoidance* role should be increased.

That said, a Party, based on strategic or other considerations, may elect to defer DRB engagement until after a Dispute arises between the Parties. More specifically, a Party contemplating such an approach may raise questions, such as:

- Why poke the hornet's nest by discussing contractual risk allocation prior to a Dispute?
- Why initiate discussions about risk allocation terms? They may be unnecessary if there are no Disputes?
- Why do the Parties need to discuss contractual risk allocation terms; these should be clear and unambiguous as written and the Parties presumably have a common understanding of those terms?
- Why request a Party to disclose its contractual understandings and strategies as to risk allocation in advance of any Dispute?
- Will this proactive approach constrain strategic options in the pursuit or defense of claims that result in Disputes?
- Can the DRB provide informed input as to risk allocation and other relevant contractual issues in advance and independent of a specific Dispute context?
- Why should the DRB communicate its interpretation of risk allocation and other relevant contractual terms prior to a Dispute?
- Will this proactive approach incite Disputes (too much transparency, too soon)?
- Could this approach constructively modify conduct and communications of the Parties and mitigate the potential and consequences of any eventual Disputes?

In summary, from an Attorney's perspective, DRBs serve a valuable role in avoiding, and resolving Disputes on tunnel projects, and the role of the DRB is distinctive relative to the roles of other Dispute resolvers. The distinctive role of DRBs provides opportunities to anticipate and avoid areas of potential Dispute, especially relating to risk allocation for subsurface conditions; design responsibility; means, methods and equipment selection responsibilities. Those opportunities may be maximized by more proactive and timely engagement of the DRB in dispute avoidance, but there may be resistance by some to such an approach.

**Conclusions and Recommendations**

Several key conclusions from the above discussion follow:

- There is general agreement that the DRB process as originally conceived in North America has provided a great benefit to the Underground Industry, however we seem to be drifting back towards lawyers and litigation which flies in the face of the original intent.
- Survey respondents are sending mixed messages in several areas, i.e., the desire to participate in the DRB process and about whether they feel that DRB recommendations should be binding or non-binding. This may be due in part to the international nature of the survey and the differences between the FIDIC contract and the varied bespoke North American contracts.
- Many owners have contract provisions that do not allow the DRB process to take place in a timely manner, instead requiring numerous intermediate steps.
- There is a limited pool of trained and qualified DRB members from which to choose. Of those, many are overcommitted.
- The success or failure of a DRB process is ultimately influenced by the people and personalities involved.

- Some feel that some DRBs are tending to stray from the contractual provisions and should provide recommendations in keeping with the contract.

Considering the above, the authors feel that an underground industry task force should meet for additional discussion on the subject in order to further distill the survey results and provide recommendations for enhancements and improvements to the current state of the practice, as it relates to underground work.

References/Resources

[1] DRBF Forum, Volume 17, Issue 2, June 2013, *Optimizing the Use of Partnering and DRBs on Project: Differing Approaches by User Agencies,* by Kurt Dettman

[2] "Conditions of Contract for Underground Works" (Emerald Book) published by the Fédération Internationale des Ingénieurs-Conseils (FIDIC) in a joint endeavor with the International Tunnelling and Underground Space Association (ITA-AITES).