Risks facing geomechanical engineers and methods of treatment

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ABSTRACT

This paper describes the main areas of risk facing geomechanical engineers today and suggests methods of treatment, with particular emphasis on settling terms of engagement. As the law is constantly evolving geomechanical engineers should keep an eye on those developments so that their documentation and methods of practice organically follow those developments. This paper describes the three main areas of risk management: project management, insurance and contract and also describes the impact of relevant legislation on engineering practices. Terms of engagement for geomechanical engineers will be discussed in detail particularly in the context of Australian Standard AS4122-2000.

1. RISK MANAGEMENT

Of the three principle areas of risk management, (project management, insurance and contract), the most effective is project management. For reasons that should become apparent shortly, neither insurance nor contract is reliable to quarantine the consultant from liability to others.

1.1 Project management

A useful starting point in evaluating the consultant's practice management is the Engineering Science and Technology Professional Standards Society (ESTPSS) website. This web site refers consultants to the four areas of documentation of management processes which that Society looks for in evaluating a candidate for membership. They are:

- client selection protocols;
- detailed work procedures;
- terms of engagement; and
- business development and quality assurance plans.

Of these, perhaps the most comprehensive and centrally related to a consultant's ability to manage risk will be in detailed work procedures. These should provide comprehensive instructions for consultants and their employees on how to deal with or avoid potential problems that might arise in their business.

From a practical point of view, client selection protocols are the next most important processes consultants should instigate. Modern business management emphasises the need to critically evaluate clients and avoid the temptation to take on every job. Ethical obligations to the profession require consultants to avoid committing to jobs that they are not competent to discharge. This can be difficult to pre-estimate at the start of a potential job and can give rise to problems as the job progresses and the consultant finds that they need to deliver opinions outside of their area of competence. That type of event is precisely what the work procedures should deal with so that the consultant can confidently avoid raising their level of risk beyond that accepted at the start of an engagement.

1.2 Legal issues

In their documentation or procedures, consultants will need to have a fair understanding of the legal risk landscape in which they navigate. Briefly, they should be aware of:

- the *Limitation of Actions Act* and how it relates to the type of liability that they might incur (particularly in relation to foundations failure);
- *Security of Payments* legislation;

- *Domestic Building Contract* legislation;
- apportionment legislation;
- the *Trade Practices Act*; and
- risk developments in the law of negligence.

This paper comments on each of these areas now but consultants should be aware that in relation to specific activities they undertake, special pieces of legislation may be relevant and they must be fully conversant with those.

1.2.1 Limitation of actions act

Many consultants will be aware in general terms of the provisions of the *Limitations of Actions Act* which prevent a person raising a claim in contract or tort more than 6 years after the cause of action arose. A cause of action arises in contract when the contract is breached. That will typically be some time in the contract period, perhaps even necessarily limited to the date of completion of the work because in many contracts (particularly construction contracts) the contractor or consultant is not required to deliver their product until that date. Technically, then, any departures from the specification or other irregularities may not constitute a breach until purported delivery of the final project is made containing the defects. The 6 year limitation period gives rise to the need to consider insurance cover for that period.

In tort, particularly the tort of negligence, the cause of action is not complete until damage is suffered. That may be a considerable period after the work has been carried out. Once the damage is suffered then the injured party has 6 years to bring its claim. This has prompted some people to quip that the limitation period for negligence is infinity plus 6 years. In practice, however, the "colder the trail" the harder it is to follow and the practical difficulty of prosecuting a claim based on events that happened in the distant past may become insurmountable. This is particularly the case given that most businesses will have destroyed archived records by the close of the contractual limitation period. From a geotechnical engineering point of view, the risk here is quite starkly raised when considering failed foundations. The law in Australia holds that the damage occurs when the diminution in value of the building whose foundations have failed is realised. In practical terms, that means when the defect in the foundations becomes known or could have been known upon reasonable inspection. Accordingly, the scale and likelihood of damage as well as the potential date of its occurrence should feature in a consultant's general risk assessments.

1.2.2 Security of payments legislation

In all jurisdictions in Australia and New Zealand legislation has been introduced to facilitate interim payments in building contracts and this has extended to consultancy agreements. The legislation provides a substantial tactical advantage to a contractor or consultant seeking payment for work against its client's protestations of defects or other breaches. The courts have been at pains to point out that decisions made under the security of payments regime are payments on account only but the practical effect of this legislation is very often to curtail disputes about payment and to facilitate rapid payment of builders and consultants.

Consultant's should be aware of some of the other features of the legislation beyond its utility in helping to get paid their fees. For example, if a consultant is engaged as a Superintendent, they will be aware that their engagement is usually complicated by the need to act as the Principal's agent in some contexts and as the Principal's independent certifier in others. The security of payment legislation has complicated this in that it implicitly invites parties to a contract to nominate the Superintendent as the person responsible for issuing a payment schedule on the Principal's behalf. If a Superintendent does this, he is issuing the payment schedule as the Principal's agent whilst at the same time the content of the payment schedule will usually depend upon the Superintendent's certification under the contract which he must carry out as independent certifier. Clearly, the prospects of mistake in this scenario are rife. Part of a consultant's risk management protocols in their terms of engagement should include a release and indemnity by the parties for any inadvertent error they might make in attempting to unravel these issues at the interface of their contracts and the prevailing legislation.

1.2.3 Domestic building contracts legislation

The domestic building industry has been a rich area of dispute for decades. The legislation has attempted, with various degrees of success, to balance the rights of owners and builders but has raised a number of complex legal requirements which are easy to misinterpret and thereby impact on the rights of parties to domestic building contracts. In particular, the drafting of domestic building contracts has become a quite complicated and difficult task and there is even disagreement among lawyers about how certain aspects of the legislation should be given effect in domestic building contracts. It would be better risk strategy for consultants not to participate in drafting contracts for clients unless they have competent legal advice.

Consultants should also be aware of the legislative emphasis placed on the provision of foundations data and the importance of obtaining that data together with realistic estimates of the cost of foundations prior to the contract being entered into. Failure to supply that information at the appropriate time can expose parties to penalties and other sanctions. If a consultant undertakes the management of domestic building work including the preparation of foundations data and documentation, they must tread with extreme care. Consultants should have work procedures (and job selection protocols) which correspond with their appetite for risk in this venue.

1.2.4 Apportionment legislation

The Law Reform Commission has suggested that one of the defects in the legal system which has prevailed over decades is that, at common law, when a number of defendants are found liable for a plaintiff's damage, they are liable jointly for the whole of the damage regardless of each defendant's particular contribution to the loss. Where some defendants become insolvent or are otherwise unavailable to a plaintiff to satisfy judgment, the remaining defendants have been called to account for the whole of the loss regardless of their contribution to the loss.

The *Civil Liability Act* 2003 (Qld) now requires courts to make determinations as to apportionment of liability for loss in order to mitigate the effects of this unfortunate aspect of the common law. Similar legislation exists in other States and Territories. What this means for consultants is that they need to set up engagements through definition of their scope of work and perhaps other conditions in their terms of engagement to assist the courts in apportioning loss away from them. In particular, they should clearly articulate their role and the role of others in any engagement they are undertaking along with their specific area of assumption of responsibility. The less consultants say about this the more they are likely to attract unintended responsibility.

Consultants could expressly deal with the apportionment problem in their terms of engagement. This can be done by an effectively written indemnity which passes any unintended liability that they might suffer to their client or others. Of course, whether or not they can do this is a commercial matter but they should not conduct their business in ignorance of the potential risk.

1.2.5 Trade practices act

Section 52 of the *Trade Practices Act* attaches liability for damages arising from misleading or deceptive conduct. Liability will arise when the damage occurs (similarly as for negligence) and the limitation period expressed in the *Trade Practices Act* is 6 years. Consultants cannot effectively exclude liability in the way they can with other contractual or tortious risks. Exclusion clauses are notoriously ineffective for protecting against liability under *Trade Practices Act* (or the *Fair Trading Act*). However, if consultants qualify their opinions to make it clear that it would be unreasonable for a person to rely on their opinion in circumstances which might be expressed, then they might change the nature of the representation and can challenge the plaintiff's reliance on it in order to defeat such a claim. This is a commercial matter but consultants should always consider qualifications to their advice, particularly where they are carrying out their advice in commercial circumstances which require something less than a comprehensive engineering investigation. The argument that "my fee was only $X so the work I did was necessarily limited" is particularly weak in the hindsight analysis of a courtroom.

Section 74 of the *Trade Practices Act* implies terms into consultancy agreements and provides that where a corporation supplies services to a consumer there is an implied warranty that the services will be rendered with due care and skill. Whilst section 68 provides that a term limiting the effect

of section 74 is void, section 68A limits the damages that can be claimed against a consultant and provides that a term of a contract for the supply by a corporation of services is not void under section 68 by reason only that the term limits the liability of the corporation for a breach of the implied term to re-supply or pay the cost of re-supply of the services.

1.2.6 Risk developments in the law of negligence

Bryan v Maloney [1995] HCA 17 (23 March 1995) held that that a builder (or an engineer) who carried out work for the initial owner of a residential building could be liable to subsequent owners, with whom they had no contract, in the event that damages might arise in the future. This case raised some significant practical difficulties, in particular the prospect of being held accountable to future owners of a residential building for defects in its design or construction which might have occurred notwithstanding appropriate warnings given to the original owners. As a matter of general principle, it is hard to see why the mere fact of change of ownership of a building or development should alter the fact that the designers or builders who acted negligently in its construction should be accountable. One would expect that if anyone was likely to suffer as a result of someone else's acts or omissions then, subject to the *Limitations of Actions Act*, that person ought to be able to recover. Essentially that was what *Bryan v Maloney* found.

However, recently, in the case of *Woolcock Street Investments* [2004] HCA 16 (1 April 2004), the High Court reviewed the decision in *Bryan v Maloney* and confined the liability of builders and consultants to subsequent owners to domestic building construction only. The High Court asserted that owners of domestic buildings are "vulnerable" whereas commercial purchasers can protect themselves by obtaining assignments of rights from the initial owner in respect of the original builders and engineers and have the ability to inspect foundations and other aspects of the construction prior to purchase. From a consultants perspective, particularly in relation to foundation design, they should, at the very least, ensure that their consultancy agreements are not assignable. If possible, consultants should seek indemnity from their clients for any future risk although they may need to accept that in many cases the indemnity won't be worth anything if the client is an asset poor developer.

These developments in the law should be monitored and the job acceptance protocols, work procedures and terms of engagement amended to take them into account. Having made themselves aware of the risks they face and having dealt with them as best they can in their client selection protocol and detailed practice management procedures, consultants should then look to insurance and their terms of engagement.

1.3 Insurance

For professionals, the keystone of their insurance structure is professional indemnity (PI) insurance. It has become harder to procure PI insurance over the years and more emphasis has been placed on ensuring that professional practices are run safely rather than relying on insurance. Whichever way a consultant constructs their insurance for PI, they should have regard to:

- their terms of engagement which should (as best they can) circumscribe their exposure to risk so far as their client is concerned;
- the timing of their risk (bearing in mind that PI insurance is written on a "claims made" basis); and
- their job acceptance criteria which defines the risk profile that they have adopted in their day to day work.

Consultants should read the terms of their insurance policy in detail and refer any questions to their insurer. Particularly, they should note that their duty of disclosure is very high. An insurer relies on the good faith of its clients and the law supports that reliance by enabling an insurer to avoid liability if it can be shown that its client has failed to make a material disclosure of a risk germane to the claim.

Consultants should also have, as part of their standard work processes, a fail safe mechanism for giving an insurer earliest possible notice of any potential claims. This is a requirement of most insurance policies and must be hard wired into the consultant's practice management. Failure to make timely notice of a claim may result in loss of insurance cover. If a claim eventuates, the

insured must not make any concessions or compromises without the full and informed consent of the insurer. To do so might compromise the insurance. Consultants should bear this in mind when participating in alliance or other "partnering" based contract arrangements. The culture of full disclosure and cooperation which is laudable in those arrangements should not incite consultants to accept responsibility for problems without their insurer's willing participation in that decision.

Finally, consultants should inform themselves of the professional standards legislation which Engineers Australia has taken advantage of in the establishment of the ESTPSS and the approval of the first scheme in New South Wales. The liability caps available under the scheme and other benefits are intended to eventually become national with the cooperation of all State and Federal Governments. For more information on this fairly recent development refer to the ESTPSS website at http://www.engineersaustralia.org.au/learned-groups/professional-standards-scheme/introduction/introduction_home.cfm.

1.4 Terms of engagement

This paper applies AS4122-2000 as a guide to the various issues that consultants should consider in preparing their terms of engagement (TOE). Professional advice on contract preparation or amendment of standard contracts is recommended.

The most important part of the TOE is the description of the scope of work. Consultants should be aware that what they expressly exclude from their scope is as important as what they expressly include. Most disputes that arise between clients and consultants have to do with misunderstandings as to the nature and extent of the scope and variations to the scope. The importance of clarity and freedom from ambiguity that is required in the scope can not be over emphasised. This is particularly so in the area of geomechanics which often deals with problems that are not deterministic or amenable of great precision. If the client is relatively sophisticated and understands that engineering, and particularly geomechanical engineering, is not an exact science then the consultant may be able to prescribe their scope with confidence that the limit of their undertaking will be well understood. On the other hand, if the consultant is dealing with a lay person they should clearly explain in their scope the nature of the work they are undertaking and state any inherent risk that might attach to their work. If the scope is set and the consultant has little opportunity to change it then they should consider including in their TOE warnings and qualifications which will necessarily affect the reliability of their work. As mentioned earlier exclusion clauses are notoriously ineffective for defending professionals against claims under section 52 of the *Trade Practices Act* but if the effect of the exclusion or qualification is to change the nature of the representation made so that in all the circumstances it is unreasonable that a client should have relied on the representation to its detriment then that is a recognised defence against a claim for misleading and deceptive conduct under section 52.

When considering the scope consultants should consider any terms that might be implied into their contract. For example, if they undertake to design and supply or design and construct works, their standard of potential liability will elevate from the duty to carry out their work with due care and skill to warranting fitness for purpose. If they wish to change that, they will need to make express mention of that change in their TOE. Consultants should be aware of the risk underwritten by the insurers here because the insurer might not cover the work for fitness for purpose!

Another important feature of the scope should be recognition if the consultant is working at the sharp end of the state of the art. Frequently when confronted with an allegation of liability for an engineering failure, consultants attempt to plead that their duty of care is lessened because they were working on the frontier of their particular science. The truth of this assertion is usually the subject of expert evidence but an express acknowledgement in the TOE assists greatly in mounting that argument if necessary later on. These considerations should inform the client and job selection protocols.

After having defined the scope, the consultant should then consider express limitations of liability and exclusions. Clause 9 of AS4122 includes an indemnity by the consultant and provides for some limited protection however that limitation is necessarily reduced by the provisions of the *Trade Practices Act*. As outlined above a consultant may limit their liability under the *Trade Practices Act* according to section 68A. Furthermore if the consultant was to act as Superintendent under

AS4000, they would be well advised to obtain an indemnity against suit from both the principal and the contractor.

Consultants should also be extremely cautious of indemnities like clause 9.2 in AS4122 having regard to the breadth of the potential liability those indemnities may impose. Insurers may not provide cover if a consultant contractually burdens themselves with potential liability substantially out of proportion to the risk they intend to undertake.

A limitation of liability in respect of time and scope of work as well as the monetary limitation should be considered by the consultant. For example, if the scope of work involves carrying out feasibility studies they should seek an indemnity against people relying on the report beyond the confines of the scope. The consultant should also retain control over the copying of their report and any qualifications or exclusions that they may seek to incorporate into their report.

For intellectual property (IP) protection most clients require an indemnity for any illegal dealing with another person's IP rights. Unless otherwise stated, any IP generated by a consultant will belong to them. Frequently clients seek to have the IP vest in them and if so the consultant should ask the client its reasons why it requires the property as opposed to an irrevocable licence to use the property. If the consultant relinquishes title to their IP they also relinquish their moral rights and are limited in the way they may want to use that IP in the future. If title to the IP is relinquished the consultant should retain a licence to use the IP for the reasonable purposes of their businesses eg advertising.

Another large area of potential difficulty in the TOE is the prescription of the consultant's fee and payment process. Under the security for payment legislation the consultant has substantially elevated rights in relation to interim payment for the work done. However, often the bigger issue is matching the fee to the work being carried or to be carried out. It is understood that in the geomechanical engineering industry fixed fees are preferred over time based fees. If the consultant is quoting on the basis of fixed fees they should have built into their job and client selection protocol and TOE a clear understanding of what that means. For example, if the nature of the market is such that the fee charged for particular work is lower than the cost of comprehensively carrying out the work, the consultant should either refuse the commission or accept the commission qualified to the extent that the client can be under no misapprehension as to the value of the work they are obtaining. Alternatively, if the consultant wishes to quote for more complex work, that the client understands has an element of uncertainty in relation to the scope, the consultant might consider quoting a fee on a flexible basis subject to adjustment upon the realisation of particular key parameters. Bear in mind that any "probabilistic" approach to fixing fees requires deeper analysis of the project than simply nominating schedules of rates. That deeper analysis can be carried out, but at a price. The client should be prepared to pay for a more sophisticated fee analysis than a schedule of rates if indeed it requires that deeper analysis.

2. CONCLUSION

The intent of this paper is to alert consultants to the dominant issues of risk in their businesses and suggested means of managing that risk. As with most endeavours, the single most important part is planning. The more a consultant plans for managing risk the better will be the outcome. If the consultant's business' documentation reflects this planning, they will have done all they can to protect themselves, their client and their employees.

REFERENCES

Australian Standard AS4122-2000, *General Conditions of Contract for Engagement of Consultants*

Civil Liability Act 2003 (Qld)

Limitation of Actions Act 1974 (Qld)

Trade Practices Act 1974 (Cth)