

Public-Private Partnerships:
Opportunities and Risks for Engineers and Constructors
Involved in Subsurface Projects

May 2008

By: David J. Hatem, PC

DONOVAN | **HATEM** LLP
counselors at law

**Public-Private Partnerships:
Opportunities and Risks for Engineers and Constructors
Involved in Subsurface Projects**

May 2008

By: David J. Hatem, PC
Donovan Hatem LLP
Boston | New York

ABSTRACT

Increasingly, Public-Private Partnerships (“PPPs”)—a delivery approach under which a Public Owner engages a Private Sector entity to develop, fund, design, construct, operate and maintain a public use project—are being explored and selected by Public Owners as mechanisms for realizing public projects for which funding, and other public capabilities and resources, are not available to support the funding, project management, operational, maintenance, and other traditional roles of the Public Owner. Sewerage outfall and transportation-related tunnels, as well as other projects having significant subsurface work, are candidates for the PPP approach. Interest in and utilization of the PPP approach is expected to continue and increase, especially as public funding availability and Public Owner appetite for design and construction risk continue to decline. Given the substantial Owner risk, funding contingency exposure, and management skill and experience involved in subsurface projects, it should not be surprising that the PPP approach will be attractive to Public Owners contemplating those projects. The future will present both significant opportunities and potential risks for Engineers and Constructors who are interested in (and capable of) participating in PPPs.

This paper will address some of the principal risk issues for Engineers and Constructors on PPP subsurface projects.

1. Public-Private Partnerships: Definition, Contracts, and Relationships

Increasingly, projects are being developed, financed, designed, constructed, operated and maintained under PPP agreements between the public and private sectors. To date, approximately 23 states have legislation authorizing, in various forms, PPPs for the delivery of public projects. PPPs started in the United States in the mid-1990s and, generally speaking, are still in their infancy. As of this date, not many have progressed through construction. Candidates for the PPP approach include an array of infrastructure projects ranging from tollroads, water and sewerage treatment plants, sewerage outfall tunnels, roadway and other transportation tunnels, power stations, hospitals, schools and prisons. This paper will focus on the use of the PPP approach on projects involving significant subsurface work.

Under the PPP approach one or more Private Sector entities—the Concessionaire—is responsible for the financing, design, construction, operation and maintenance of the project. The principal objectives and drivers for these PPPs are the desire of the Public (governmental) Owner to deliver projects without recourse to public funding, to significantly reduce its risk exposure, and to improve the quality and efficiency in delivery of those projects and the ongoing operational service to the public.¹

The Concessionaire typically is a special purpose entity which has no assets other than the capital investments from shareholders and loan proceeds from a Construction Lender (the "Lender"), and the expectation of revenue from project post-completion operations (e.g., tolls from public roads or tunnels). As such and as a

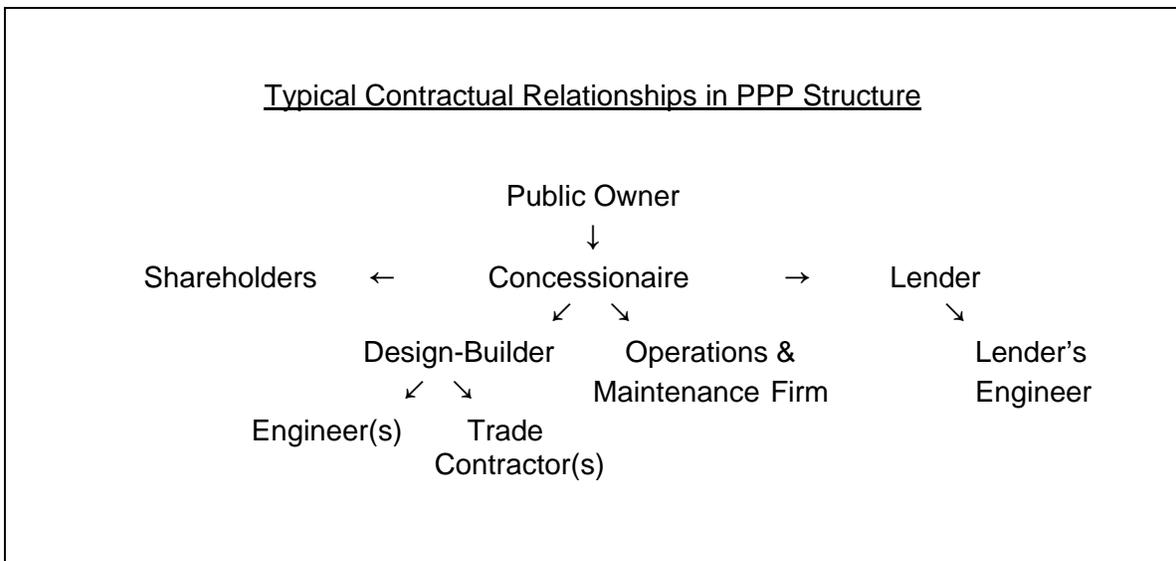
¹ For an excellent general discussion of Public-Private Partnerships, see J. Stainback, Public/Private Finance and Development (Wiley 2000).

general matter, the Concessionaire is a "special purpose vehicle", which is incorporated and funded solely for the purpose of holding the rights to develop, design, construct, operate and maintain the Project.

As a general matter of contractual structure, a PPP may involve:

- A **Concession Agreement** between the Public Owner and Concessionaire, with the Concessionaire (usually a special purpose entity formed solely for the project-specific purpose by the sponsors and having no substantial staff or physical assets) undertaking responsibility for the financing, design, construction, operation and maintenance of the Project.
- A **Design-Build Subcontract** between the Concessionaire and a Design-Builder (typically, Constructor-Led), pursuant to which the latter is responsible for the design and construction of the Project.
- One or more **Subconsultant Agreements** between the Design-Builder and Engineer subconsultants (the "Engineer"); the latter of whom are obligated to design and provide other professional services relative to the Project.
- One or more **Trade Subcontracts** between the Design-Builder and various trade subcontractors which will be required to furnish labor or materials required to construct all or a portion of the Project.
- An **Operations and Maintenance Subcontract** between the Design-Builder and another entity which will be responsible for post-construction operations and maintenance of the Project.
- A **Lending Agreement** between the Concessionaire and a bank or other lending institution (the "Lender") for the financing of the design and construction of the Project.

- A **Shareholder Agreement** (often in the form of subordinated debt investment) between the Concessionaire and various shareholders who will invest capital and hold equity positions in the PPP. The Shareholders have an expectation to share in the operating revenue of the Project once construction is completed; in some instances, the Shareholders may also share in project risk and loss. As a general matter, the ratio of Shareholder investment to project financing is relatively small.
- A **Lender's Engineer Agreement** between the Lender and an Engineering Consultant, pursuant to which the latter typically may be engaged on behalf of the Lender to provide a variety of services including due diligence, design review, evaluations of project technical feasibility, economic predictions, and evaluations of project design development and status of construction work.



2. Public-Private Partnerships: Risk Allocation Objectives

The first step in an effective risk management program for Subsurface Projects involves the planning and execution of an adequate subsurface investigation. Subsurface Projects inherently involve significant risk potential given the inability to predict with precision ground conditions and the practical, economic and technical limitations on the ability to obtain complete or accurate information about those conditions, or their anticipated behavior during construction operations. Uncertainty and relative unpredictability of subsurface conditions pose significant risk potential for all project participants, but especially the Project Owner and the Constructor.

Assuming that a reasonably-defined and adequate subsurface investigation has been planned and implemented, the next important step in an effective risk management program for Subsurface Projects involves the allocation of risk among project participants.

As in any subsurface project, fair and equitable risk allocation among the major project participants in the PPP approach is critically important.² This has certainly

² To date there exists limited legal precedent or data regarding risk and liability issues associated with PPPs. In April 2007, Standard + Poor's issued a Report entitled "The Anatomy of Construction Risk: Lessons from a Millennium of PPP Experience", based upon survey responses from lenders, constructors, public owners, technical (engineering) consultants and financial advisors, owners and concessionaires who have been involved in PPP projects. These responses revealed the following:

- "...exposure to construction risk remains highly contingent on the specific characteristics of a project, its contractual provisions, and its associated transaction structuring."
- "...by far the most frequently reported cause of distress affecting PPP construction works relates to the inexperience, lack of commitment, lack of engagement, bureaucracy, and interference of public-sector project participants, and associated scope changes and enforced delays."
- Areas of concern for risk rank subsurface projects as relatively high.
- Regarding "site conditions" the Report states:

"Unforeseen ground conditions are a key reason cited for construction delays. Some respondents pointed to circumstances under which preliminary subsurface investigations were rushed or incomplete, or where poor location of bore holes and trial pits resulted in deficient soil or rock sampling. Others highlighted the fact that, as geologic investigative techniques rely on sampling,

proven to be the case in the context of the traditional Design-Bid-Build delivery approach and in the context of Design-Build. See D. J. Hatem (ed.) Subsurface Conditions: Risk Management for Design and Construction Management Professionals, Wiley, January 1998; G. Brierly & D. J. Hatem (eds.), Design-Build Subsurface Projects, Zeni House (2002); D. Corkum and D. Hatem, A Contracting Strategy for Managing Risk on Subsurface Projects Delivered Using Design-Build 2003 RETC Proceedings; G. Brierly & J. Smith, Contracting Practices for Underground Projects, 2003 Construction Law Update (Aspen 2003).

Much has been written about the advisability of clear and fair allocation for subsurface condition risk in more traditional delivery method contexts. Project experience and the attendant "lessons learned" amply demonstrates that unclear and unfair risk allocation for subsurface condition risk has a number of potentially (if not probable) negative consequences, including reducing the number of willing and qualified constructors interested in pursuing such a project; the inclusion of undisclosed contingency as a mechanism to "manage", or more accurately hedge, the heightened risk assumption; the probability of more conflict, adversity and disputes among project participants; a significant increase in the inability of the constructor to meet performance requirements and expectations due to the disproportionate burden imposed by such risk assumption; and an increase in the risk of professional liability claims by the Project Owner and/or Constructor against the Engineer derivative of the increased conflict and disputes potential between the former.

the possibility for different ground conditions to be present between exploratory points always exists. In such cases—as with unexpected archeological or mining discoveries—respondents were keen to emphasize that these risks should remain entirely with the public sector or should, at least, be shared between the private and public sector partners."

In substance this Report confirms that many of the "improved contracting practices" and other recommendations for fair risk allocation and dispute resolution on subsurface projects should be applied in the context of PPP subsurface projects.

PPPs will prove to be no exception in terms of the need for clear and fair risk allocation for subsurface conditions among the major project participants. Simply put, the "lessons learned" evidencing the advisability and prudence of clear and fair risk allocation for subsurface conditions will prove to have equal applicability in the PPP subsurface project context.

A. Design-Build Risk Allocation on Subsurface Projects

Most PPP projects are delivered using, in essence, the Design-Build approach under which a single entity—the Design-Builder (typically, Constructor-Led)—is singularly responsible for both design and construction of the Project (the "single-point principle"). See, D.J. Hatem, Professional Liability Risk Exposure for Design Professionals: Design-Bid-Build v. Design-Build Projects: Professional Liability Insurance and Surety Considerations, Underground Construction in Urban Environments, ASCE, May 11, 2005. As such, revisiting some of the basic risk allocation issues and recommendations applicable in the context of Design-Build subsurface projects is appropriate at this point.

Some Project Owners, utilizing the Design-Build approach, expect that the single-point principle extends to transfer to the Design-Builder (and its Engineer and trade subcontractors) responsibility for all risk associated with subsurface conditions encountered at the site; an expectation that derives from the increased role of the Design-Builder in conducting subsurface investigations and in the design of the project. This approach could lead to significant—potentially boundless—risk assumption by the Design-Builder given the typical role of the latter in conducting or validating (and assuming responsibility for) subsurface investigation and in the development and finalization of project design. This approach, however, is both misguided and unrealistic. While a

Design-Builder may, depending upon contractual terms, have the obligation to conduct or validate subsurface investigation and, hence, greater responsibility for subsurface condition risk than may otherwise be applicable in the Design-Bid-Build context (under which the Project Owner typically is responsible for the performance of subsurface investigation and the furnishing and reporting of relevant data), there should always be boundaries to and limitations on the Design-Builder's responsibility for cost and schedule impacts associated with the encountering of subsurface conditions at variance with reasonable expectations as defined in the Design-Build Contract, independently or by reference to Geotechnical Baseline Reports or other subsurface reports.³ Put another way, while the Design-Builder's degree of risk assumption for subsurface conditions may be greater in the Design-Build context, there should be limits to that degree that are clearly communicated and understood, reasonably established, and contractually defined.

Similarly, the Design-Builder's risk for problems or defects associated with the constructability, achievability and quality of the final design is greater than in the Design-Bid-Build delivery method given the Design-Builder's responsibility for the development and finalization of that design. However, the Design-Builder's responsibility for final design may not be absolute or unqualified in circumstances in which either (a) Owner-furnished and mandatory design criteria are overly prescriptive or detailed; or (b) the Design-Builder's judgment and discretion to develop the final design is limited or controlled by the Project Owner through the design development review and approval process, or otherwise.

³ For a discussion of Geotechnical Baseline Reports, see R. Essex, Geotechnical Baseline Reports for Construction, ASCE 2007.

As such, more enlightened Project Owners utilizing the Design-Build approach recognize the advisability of fairness and balance in the risk allocation process notwithstanding the increased role of the Design-Builder in subsurface investigation and in the development and finalization of project design.

B. PPPs and Risk Allocation on Subsurface Projects

Given that most PPP projects are delivered utilizing the Design-Build approach, are there any reasons why different risk allocation objectives or principles should apply in the PPP context? In general, the answer should be "no". However, there are several reasons that may account for why efforts are made in the PPP approach to transfer to the Design-Build team greater risk for subsurface conditions and defective design than may typically be assumed even in the more pure Design-Build context.

As is typically the case in risk allocation, the direction starts (and in the public sector, for all practical purposes, ends) with the Public Owner's interests and objectives. See, D. Hatem, Risk Allocation and Dispute Resolution on Construction Projects: Roles and Challenges for Legal Counsel, The CA/T Professional Liability Reporter, June 1997. Risk allocation in PPPs is no exception. The Public Owner's risk allocation objectives in most PPPs may be summarized as follows:

- i. The entire risk of delivering the Project on time and within the fixed price should be transferred to the Concessionaire by the fixed price/time terms of the Concession Agreement.
- ii. All substantial project risks, including subsurface and defective designs—once identified or assumed by the Concessionaire—should be transferred or managed by a combination of either (a)

insurance; (b) contractual risk assumption not transferable to insurance; and/or (c) assets of the Concessionaire.

Of course, the character and extent of risk identified will be project specific in nature and, therefore, generalizations are not especially meaningful in this context. However, as a general matter, the Concessionaire may manage risks by (a) retaining and managing the risk; (b) transferring the risk, through indemnity or otherwise to another project participant (such as the Design-Builder and/or Engineer); or, if available, (c) transferring the risk to insurance. The Lender generally will require that the Concessionaire transfer "downstream" to the Design-Builder, Engineer and trade contractors as much risk as possible and similarly will require that as much risk as practicable be transferred to available and adequate insurance coverages, including project-specific insurance. However, insurance is not available for a significant portion of the risk associated with subsurface conditions.

C. How are these objectives typically addressed in the various networks of PPP contracts?

- Concession Agreement

In the PPP approach, the Public Owner relinquishes significant control over major aspects of the design and construction of the Project; the transfer of that degree of control results in a commensurate degree of significant risk assumption by the Concessionaire in the Concession Agreement.

In the negotiation of the Lending Agreement between the Concessionaire and the Lender, the Concessionaire typically is required to demonstrate (credibly) to the Lender that risk assumed by the Concessionaire in the Concession

Agreement will to the maximum extent either be transferred to insurance (often required to be project specific in nature) and/or allocated downstream to other project participants, such as the Design-Builder (and its Engineer). The inability to achieve this objective of maximizing risk transfer from the Concessionaire may be a "deal breaker" in obtaining a financing commitment; and, at minimum, the extent to which that objective may be achieved will affect the cost of financing (and, hence, the competitiveness of the Concessionaire's proposal to the Public Owner).

Even though neither the Design-Builder nor the Engineer are direct parties to the Concession Agreement, the latter agreement will provide the risk allocation framework or context under which design and construction risk will sought to be allocated to, and contractually assumed by, all downstream (lower tier) design and construction firm project participants.

As has been stated:

"The Design-Builder in a Public-Private Partnership is expected to take all the risk associated with the design and construction of the project that the Concessionaire agrees to in the Concession Agreement. The Concessionaire is driven to shed all risk given that it is a special purpose entity created for this project and that the lenders will demand that such entity retain no significant risk. The result is that the Design-Builder will enter into a back-to-back design-build agreement and that the Concessionaire does not have the same motivation to achieve equitable risk allocation.

If the Design-Builder understands that it will essentially assume all risks in the Concession Agreement associated with the design and construction of the project and the Concessionaire is not incentivized to aggressively negotiate equitable risk allocation, the Design-Builder will assume a prominent position at the negotiating table with the public sector owner. The Design-Builder will aggressively pursue contract comments and modifications and will attend all negotiations with the owner and assert its position. The astute Design-Builder will quickly identify the key risk allocation issues with the Concessionaire in the form of a term sheet so that

the Concessionaire and the lenders understand the Design-Builder's risk position at an early point in time." P. Varela, D. Follett, J. Debs, and J. Onnembo, "Strange Bedfellows: How to Participate in a Public-Private Partnership Without Losing Your Shirt", Construction SuperConference (Session E-11, December 7, 2006).

As such, it is critically important that the Constructor and its Engineer carefully review the relevant provisions of the Concession Agreement that involve design and construction risk assumption and, if at all possible, be involved in the negotiation of that agreement. These provisions may address such subjects as risk and responsibility for accuracy and adequacy of subsurface investigation and data; the role and extent of the Public Owner in the review and/or approval of design development submissions of the Design-Builder; the standard of care or warranty applicable to the final design furnished by the Design-Builder and/or its Engineer; and the indemnification obligations of the Design-Builder and/or its Engineer. As to the latter, typically, the Concession Agreement will contain provisions obligating the Concessionaire and other project participants (including the Constructor and Engineer) to indemnify the Public Owner and others for various risks, and legal liabilities, including breach of contract, breach of warranty and negligence. These indemnity obligations generally are flowed down by the Concessionaire to the Design-Builder, Engineer and trade contractors, along with requirements that the latter parties also indemnify the Concessionaire, the Lender and potentially other parties (e.g. Shareholders) who are external to the PPP. Some of these indemnity provisions, as well as other provisions included in the Concession Agreement may transfer risk not insurable under traditional design and construction insurance coverages.

The opportunities for additional compensation or time extension entitlements under the Concession Agreement generally are limited. In addition, if the Public Owner is obligated to grant such equitable adjustments to the Concessionaire, typically those adjustments may take the form of extending the concession term or increasing the tolls or charges that the Concessionaire may derive as revenue upon completion of the construction process. Thus, the compensation may actually flow to the Concessionaire (and, therefore, downstream) significantly later than the time that the Concessionaire incurs the additional cost and time impact during the construction process. This potential "hiatus", coupled with the limited opportunities for entitlement to cost/time adjustments, could impose substantial economic drain and tension on the internal operations and finances of, as well as project relationships among, the Concessionaire, the Design-Builder, the Engineer and trade contractor participants during the design and construction process, increasing the risk of disappointed commercial expectations and claims, only some of which may be covered by available insurance coverages.⁴ As has been noted: "There is a potential mismatch between what the concession company is likely to get from the governmental entity under the Concession Agreement, what it is able to

⁴ The availability of project-specific insurance to cover the assumption or transfer of risk for cost overruns due to unanticipated subsurface conditions or defective design is quite restrictive in the present market. Moreover, the availability of such coverage is highly dependent upon project-specific risk assessments, evaluation of contractual risk allocation terms, and is subject to periodic monitoring of project developments measured relative to specified underwriting assumptions. See, D.J. Hatem, Design-Build Risks and Professional Liability Insurance: A Disconnect, 2005 IRMI Construction Risk Conference; D.J. Hatem, Project Alliancing, Integrated Project Delivery Approaches, and Public-Private Partnerships: Design Professional Roles, Responsibilities, Relationships and Risks—Professional Liability Insurance Issues and Challenges, Boston Design Professional Roundtable, April 2007; see D.J. Hatem, Developing Risk Indicators for Evaluating Professional Liability Exposure on Major Public Projects: A Broader Dimensional Approach, Design and Construction Management Professional Reporter (Donovan Hatem LLP, February - March 2004); D. J. Hatem, Public Owner Programs for Design Professional Accountability and Project-Specific Professional Liability Insurance: Functional Alignment, Transportation Research Board, July 10, 2007; see D.J. Hatem, Insurance Practice Codes for Major Subsurface Projects: Help or Hindrance for Primary Projects Participants, Boston Society of Civil Engineers, November 3, 2007.

procure from the project financiers and its liability to the construction contractors and operators under the various project agreements. The concession company should always attempt to ensure that there is no 'gap' between what it receives and what it pays out." A. Chew, et al., PFI/PPP Project Agreements—Risk Allocation Issues to Consider in Flow-Down of Risks, The International Construction Law Review (2005), 91-96.

Under the Concession Agreement, the Concessionaire is obligated to produce a project designed and constructed in accordance with the quality, ultimate user and performance standards specified in the Concession Agreement. That obligation exists not only upon completion of the Project, but extends into the concession period, which typically could be as long as 25-35 years. Thus, the Concessionaire has a "long tail" exposure for design and construction deficiencies that extends coterminous with the concession period which, in many cases, may be substantially longer than the applicable statute of repose/limitations, as well as the coverage duration of any procured project-specific insurance coverages.

Many Concession Agreements contain a mechanism under which the Public Owner and Concessionaire appoint independent technical advisors to monitor the design and construction of the Project and to make final and binding decisions as to whether the design deliverables and/or construction work meet the various requirements of the Concession Agreement. The Design Builder, Engineer and trade contractors may be required, by virtue of flow-down provisions, to adhere to those decisions and accept them as final and binding.

From the perspective of the Engineer, particular attention should be focused on provisions such as flow down, indemnification, standard of care, warranty/guaranty, design development discretion/responsibility and scope of permissible design review by others, and the role of the Engineer in providing services during construction, as well as the role of the Engineer in cost estimating during the bid and pre-award phase. See D. Corkum and D. Hatem, A Contracting Strategy for Managing Risk on Subsurface Projects Delivered Using Design-Build, 2003 RETC Proceedings.

As a general proposition (and certainly in Australia), the underlying governmental rationale for public private partnerships is that they must offer the "value for money" (the "value criterion"). The value criterion typically is at the center of the factors considered by public owners in evaluating whether a project proposed for a public private partnership is appropriate for delivery under that approach. Generally, the extent or degree of the Public Owner participant's ability to transfer or relieve the public of substantial development, funding, design and construction risk associated with a proposed project is a critically important factor in this evaluation; the greater the extent or degree of risk transfer, the more perceived the "value criterion" is considered to be satisfied. As has been stated: "...a large component of the evaluation of the value for money concept is based on risk transfer to the private sector." A. Chew, et al., "An Overview of Risk Allocation in Recent PPP Infrastructure Projects in Australia", The International Construction Law Review (2005) 289, 282.

In Australia where—at least as of this date—the vast majority of PPP projects have occurred, private sector participants interested in PPPs maintain that risks should not be transferred to them until a rigorous risk identification program has been completed and in no event should risks be transferred to them when they are not able to control and manage them; and that when such inappropriate risk transfer occurs, the result is higher risk premiums for that contingent exposure or, more drastically, the failure of the project or its private sectors participants (i.e. bankruptcy or other forms of financial insolvency). Lender requests have a major influence on risk allocation decisions in PPPs; the Lenders must be comfortable (preferably, even more than comfortable) with the degree of risk to which their funds are exposed.

Of course, each project is different and the identification and evaluation of risk must be undertaken and understood in the specific project context. Generalizations are not meaningful in this context. As to risks associated with the design and construction process in PPPs, it has generally been stated:

"One of the key government objectives in PPP deals is to take advantage of the concession company's ability to bring design innovations and construction expertise to the delivery of the projects. In all PPP deals, the concession company will be required to assume the risk for the design, construction and commissioning of the infrastructure facilities. The concession company is also obliged to provide a fitness for purpose warranty to the government entity for the performance of the infrastructure facility during the operational phase. The government frequently seeks an 'output'-based fit-for-purpose warranty, which is linked to the government's service needs from time to time during the operational phase." A. Chew, *supra*, p. 294.

The Concessionaire generally is expected to assume significant or the entire risk of government approvals, force majeure and subsurface, site and environmental conditions, unless the Concessionaire can demonstrate that the degree of risk assumption would represent a significant risk premium cost (or

project cost to the public entity) for those contingent risk exposures, to be paid by the public entity regardless of risk occurrence. As has been demonstrated in other non-public private partnership contexts, the degree of risk assumption of construction contractors and/or design builders for differing site condition exposures indirectly impacts (and increases) the degree of professional liability exposure for design professionals on those projects. See, D.J. Hatem, The Relevance and Potential Impact of Risk Allocation Provisions in Owner-Contractor Agreements on Professional Liability Experience of Design Professionals, Design and Construction Management Reporter (Donovan Hatem LLP, October 2003). In addition, driven by Lender requirements, PPP projects typically contain relatively substantial liquidated damages for delayed completion.

In addition to the risk of exposure due to delayed project completion, the Design-Builder and its Engineer also have substantial consequential damage exposure following completion of the project. As has been noted:

"...[U]nder the PPP structure, the Concessionaire is reimbursed the project costs including financing in one of two ways which repayment occurs over the life of the concession: (1) tolling revenues generated by the project or (2) a guaranteed revenue stream which is also frequently called shadow tolling. Repayment is typically tied to availability and condition of the infrastructure asset. If payments are reduced because of a defect in the asset, the Concessionaire will expect the Design-Builder to bear the risk of that lost revenue. As a result, in the financed PPP market the Design-Builder will assume an affirmative post-completion obligation for lost revenue (i.e., consequential damages) of the Concessionaire." P. Varela, D. Follett, J. Debs, and J. Onnembo, "Strange Bedfellows: How to Participate in a Public-Private Partnership Without Losing Your Shirt", Construction SuperConference (Session E-11, December 7, 2006).

- Design-Build Agreement

Based upon the preceding discussion, the terms of the Agreement between the Concessionaire and the Design-Builder need to be evaluated according to the same standards utilized in reviewing a Design-Build Prime Agreement outside of the PPP context. See D. Corkum and D. Hatem, A Contracting Strategy for Managing Risk on Subsurface Projects Delivered Using Design-Build, (2003 RETC Proceedings). In addition, the substantial risks assumed by the Concessionaire under the Concession Agreement and the Concessionaire's (and its Lender's pressure) to aggressively flow down risk to the Design-Builder (and further down to sub-tiers of the Engineer and trade contractors) emphasizes the need for careful review of the prime Design-Build Agreement in the PPP context.

The Design-Builder Agreement should include a differing site conditions clause under which risk is shared and allocated between the Concessionaire and the Design-Builder. Use of Geotechnical Baseline Reports are effective mechanisms to facilitate the definition of such risk allocation.

- Design-Builder/Engineer Subconsultant Agreement

Similarly, the Design-Builder/Engineer Subconsultant Agreement should be reviewed using the same standards applicable in a pure (non-PPP) Design-Build project context See D. Corkum and D. Hatem, A Contracting Strategy for Managing Risk on Subsurface Projects Delivered Using Design-Build, (2003 RETC Proceedings), with specific attention on scope of design development discretion and Owner's approval standards, standard of care, warranty, performance (output) flow down, insurance and indemnity provisions. In addition, the agreement should be reviewed to determine the role, if any, of the Engineer

in cost estimating and in assisting the Design-Builder in agreeing to time and cost commitments in the prime agreement with the Concessionaire. See, D.J. Hatem, Design-Build Risks and Professional Liability Insurance: A Disconnect, 2005 IRMI Construction Risk Conference.

- Lender's Engineer Agreement

This agreement should clearly define the scope of the Lender's Engineer's services and include other provisions that (a) define the role, duty, and scope of the Engineer in review of design submissions and in the evaluation of construction work; (b) limit liability of the Lender's Engineer and waive responsibility for consequential damages; (c) limit the Lender's Engineer's duty to the Lender; and; (d) limit dissemination of and the right to rely upon the Lender's Engineer's Reports and other deliverables.

The role and potential risk exposure of the Lender's Engineer is somewhat similar to that of an Owner's Engineer in the Design-Build context. See, D. J. Hatem, (ed.), Subsurface Conditions: Risk Management for Design and Construction Management Professionals, paragraph 10.2.3.4(A) Wiley, January 1998. In general terms, the potential professional liability risk exposure could be substantial and significantly disproportionate when compared to the relatively limited role and compensation of the Lender's Engineer. This liability risk exposure exists with respect to not only claims by the Lender, but also third parties who receive and rely upon reports or other work product of the Lender's Engineer. See, D. J. Hatem, (ed.), Subsurface Conditions: Risk Management for Design and Construction Management Professionals, paragraph 10.1.2.2 Wiley, January 1998; Aliberti, LaRochelle & Hodson Engineering Corp., Inc. v. FDIC, 844 F. Supp. 832 (D. Me 1994).

The Aliberti case is instructive in terms of the potential professional liability exposure of a Lender's Engineer. In Aliberti, LaRochelle & Hodson Engineering Corp., Inc. v. Federal Deposit Insurance Corp. 844 F. Supp. 832 (D. Me. 1994), the federal district court ruled that an engineer and a construction manager were liable to a bank (and, hence, the FDIC, which had succeeded to the bank's interest in the project) that loaned and advanced monies to a developer based on representations made by the engineer and the construction manager. In the Aliberti case, the developer retained an engineer and a construction manager, under separate agreements, to provide various professional services in connection with the developer's proposed construction of a condominium/motel. The developer contacted a bank to obtain financing in connection with the project. In order to reduce project time and costs, the developer proposed to the bank that the project be designed and constructed in phases under the so-called fast-track method, in which it would not be necessary to have a complete set of detailed drawings prior to construction start. In addition, the developer reasoned that construction in phases would facilitate the ability to obtain financing within the lending limits of the bank.

In making its decision to commit financing for the project, the bank hired its own construction consultant, who had experience in the design and construction of similar projects, to verify financial and technical construction information provided to the bank by the developer and/or by the engineer and the construction manager. After some preliminary due diligence investigation, the bank issued a commitment letter to the developer that contained certain conditions. A budget prepared by the developer was appended to the commitment letter. After reviewing the budget, the engineer and construction manager notified the developer that the budget contained insufficient amounts for

certain hard-cost line items and that there were scope of work items not included in the budget. In substance, the developer told the engineer and construction manager "that this was just an interim budget and not to worry about the missing budget items." At a subsequent meeting the engineer and construction manager again expressed their concerns to the developer concerning the inadequacy and incompleteness of the budget and, again, were told "not to worry." Neither the engineer nor construction manager ever directly expressed their concerns about the budget to the bank. At a meeting with the bank, both the engineer and the construction manager were told that if, during construction, the project costs changed from the budget, then any such change in cost should be noted on the requisition form prior to submission to the bank and its construction consultant for review.

The loan closed and construction of the first phase of the project commenced. After the first month of construction, the bank's construction consultant became concerned that the project "was in trouble, but requisitions continued to display the [budget] number which was attested to by representatives of the engineer and construction manager." Shortly thereafter, it became apparent that the actual project cost would be nearly double the amount in the budget, and work on the project was suspended. The bank later purchased the project on a foreclosure bid.

After a trial, the district court found that the engineer and construction manager were liable to the FDIC (as successor to the bank's interest) based on four separate grounds: (1) inaccurate and false statements that the project could be completed for the amount stated in the budget; (2) failure to disclose knowledge of the missing line items contained in the budget; (3) failure to disclose the inadequacy of certain amounts for line items included in the budget;

and (4) false statements of the total project cost on the requisition submitted to the bank. In making this determination, the district court relied on several factors including (1) the fact that the developer's respective contracts with the engineer and construction manager obligated the latter firms to provide cost estimating services and to evaluate and update construction budget and anticipated costs; (2) the engineer and construction manager knew that the budget was inadequate and incomplete but failed to so advise the bank, despite their knowledge that the bank was relying on the information contained in the budget; (3) when the engineer and construction manager signed and submitted requisitions to the bank, they knew that the stated project cost was inadequate and substantially less than the amount needed to complete the first phase; (4) the bank justifiably relied on the representations made by the engineer and construction manager, which led the bank to wrongfully lend money and disburse loan proceeds to the developer; and (5) uncontradicted expert testimony established that the engineer and construction manager, as construction professionals, had responsibilities "to correct any misinformation, to disclose the absence of any familiarity with information, and to inform the Bank, if necessary, that estimating services which a bank would reasonably expect had not been undertaken," "that it is incumbent on the design professional to speak out," and "that construction professionals have an absolute obligation to clarify their involvement or lack of involvement in the project." After considering all this evidence, the district court ruled that the engineer and construction manager owed a legal duty to the bank to be honest and candid in communications with the bank despite the absence of a contractual relationship.

The preceding discussion should amply demonstrate that the process of risk identification and allocation for Engineers and Constructors in PPP subsurface projects is complex and necessitates a comprehensive and detailed project-specific risk assessment and evaluation, and a review of a number of contracts beyond simply the Design-Build Agreement and the Subconsultant Agreement between the Design-Builder and the Engineer. In fact, there are many contractual documents that need to be reviewed at various iterative stages as the PPP Project moves from the planning and procurement stages into realization. All of these documents and, in particular, the risk allocation objectives of the Public Owner and the Concessionaire, can and will influence the pressures upon and nature and degree of risk assumption by the Design-Builder and its Engineer.

In this regard, it has been recognized that the levels of complexity in the various levels of contract negotiations and relationships among PPP participants results "in a proliferation of documents between all of the parties which can include lender direct agreements and interface agreements. The typical documentation of a PPP transaction is at a minimum triple that of more conventionally delivered projects. Risk issues for a Design-Builder can arise in any of those documents to which the Design-Builder is a party. "P. Varela, D. Follett, J. Debs, and J. Onnembo, "Strange Bedfellows: How to Participate in a Public-Private Partnership Without Losing Your Shirt", Construction SuperConference, (Session E-11, December 7, 2006). All of these legal documents—in and for whatever stage—must be carefully reviewed and understood from the legal and risk perspectives; no two PPP deals are exactly alike.

CONCLUSION

Engineers and Constructors involved in subsurface projects should expect to see a steadily increasing number of project opportunities utilizing the PPP approach. PPP project experience—especially from a risk assessment perspective—has yet to develop to a point at which meaningful observations (much less lessons learned) can be stated. However, notwithstanding that limited experience, there is no good or logical reason to conclude that the salutary principles of fairness, clarity and realism in subsurface risk allocation should not apply in the PPP context. PPPs pose substantial opportunities for Engineers and Constructors, as well as the opportunity to realize and achieve projects for the benefit of the public that otherwise would not be achievable with presently available public funding. These opportunities, however, must be understood, balanced and fairly undertaken with an appreciation of the potentially significant risk which may be transferred to the Engineer and Constructor. The analysis and informed discussion of this subject are in the early stages. We need to anticipate, capture and communicate the experience, understand the relevant risk factors for Engineers and Constructors involved in PPP subsurface projects, and develop guiding principles and standards to shape risk allocation in this relatively new frontier. In the final analysis, Engineers and Constructors will benefit from this proactive approach.

David Hatem is a Founding Partner of the Boston-based law firm, Donovan Hatem LLP. He leads the firm's Professional Practices Group, which represents engineers, architects and construction management professionals. Attorney Hatem is nationally recognized for his expertise in law related to the design and construction industry. He is regularly called upon by this country's leading architect and engineering firms to provide procurement advice to public owners contemplating major projects and to propose risk management strategies, and solutions, especially on major subsurface projects.

Throughout his career, Attorney Hatem has dominated the representation of consulting engineers and construction managers, providing services to major Boston-area construction projects, including: the Massachusetts Water Resources Authority's Boston Harbor Cleanup Project, and its Metrowest Tunnel Project; the Massachusetts Highway Department's Route 3 Design-Build Project; the Massachusetts Bay Transit Authority's Greenbush Project; and, most prominently, the Massachusetts Transit Authority's Central Artery/Tunnel Project. In addition, Attorney Hatem has been retained by professional liability insurers under Owner-Controlled Insurance Programs to represent engineering consultants and construction program management professionals on major underground projects throughout the United States, including New York City's East Side Access Project and Second Avenue Subway Project, L.A. Metro's Red Line and East Side Extension Projects, Seattle's Sound Transit Project, Milwaukee Metropolitan Sewage District's Deep Tunnel Project, Dallas' DART Light Rail Transit Project and Houston's Rapid Transit Project. Attorney Hatem is presently providing risk management/insurance advice regarding a proposed professional liability OCIP Program for the Second Avenue Subway Project in New York.

Attorney Hatem frequently lectures on issues of professional liability for design and construction management professionals, risk management, and Design-Build procurement issues, and he has authored numerous related articles. Attorney Hatem also teaches a course at Tufts University, "Legal Aspects of the Engineering Process."

Attorney Hatem can be reached at 617-406-4800, or by e-mail at dhatem@donovanhatem.com.

About Donovan Hatem LLP

Donovan Hatem LLP is a multi-practice law firm, currently ranked as one of the 25 largest firms in the Boston area. With offices in Boston and New York, we serve a diverse clientele of private companies, nonprofit organizations, government entities, and individuals. Our clients rely on our experience and expertise for focused advice and counsel that can minimize risk and exposure.

The Professional Practices Group at Donovan Hatem includes more than 40 attorneys who provide highly-specialized counsel to engineers, architects, and construction managers. Our experienced trial lawyers represent design professionals in jury and non-jury cases in the northeast and nationwide, and at mediations, arbitrations, and other dispute resolution forums. In addition to professional liability claims defense, Donovan Hatem's scope of expertise encompasses risk management, contract review, and general business matters.

To learn more, please visit our website at www.donovanhatem.com.

World Trade Center East
Two Seaport Lane
Boston, MA 02210
main 617 406 4500
fax 617 406 4501

One Penn Plaza
250 W 34th Street, Suite 3324
New York, NY 10119
212 244 3333 main
212 244 5697 fax

DONOVAN | HATEM LLP
counselors at law