

parts of the world. For example, use of the design-build method increased from an \$18 billion (in the mid-1980s) to a \$69 billion (in the mid-1990s) industry and now represents roughly 25 per cent of the United States construction industry.⁵

Where the contractor takes responsibility for both the design and construction of the works, the employer's advisers find their involvement limited primarily to the tender process and supervision of the contractor's work. The definition of supervision is likely to be the subject of extensive negotiation between the parties, as the employer will want to maintain control over the construction process. Consideration should also be given to the situation where the employer undertakes a front end engineering and design (or FEED) study for the purposes, inter alia, of tendering the project and where the successful contractor is required to assume responsibility for the content of the FEED study.

1-09 The turnkey system generally uses the lump-sum pricing method. Certain practitioners believe that it is ill-suited to interim payment based on the cost of work done, due to the difficulty of verification by outside experts of the figures submitted by the contractor.⁶

The turnkey contract places the responsibility for the entire project in the hands of the contractor. Thus, there is no need to identify whether a defect has been caused by defective design or defective construction of the works. As a general rule, any defect falling within the scope of works will be the responsibility of the contractor. Contractor liability makes design-build contracts particularly attractive for employers⁷ and financing institutions. The potential liability of (or risk assumed by) the employer under other construction contracts (where, for example, he provides any design specification the responsibility for which is not assumed by the contractor) has led to a dramatic growth of design-build contracting.⁸

The use of the turnkey method of construction results in a considerable reduction of intervention by the employer in the design and construction process, as compared with other contracting methods. The role of the employer will consist primarily of contract administration. His role may also include, depending upon the terms of the turnkey contract, review and/or approval of designs. Further, the design used ought to be consistent with the technical capacities of the contractor, resulting in a more efficient and cost-effective application of the design to the construction of the works.

1-10 The combination of the design and construction responsibilities should also decrease the overall time for completion. This phenomenon is known as

⁵ M.L. McAlpine, "Construction Law: Will Design-Build Contracting Really Solve All of the Problems?" (1997) 76 *MI Bar Jnl.* 522, available online at: <http://www.mcalpinelawfirm.com/CM/Articles/Michigan-Bar-Journal-June-1997.asp> [Accessed June 10, 2013].

⁶ I.N.D. Wallace, *Construction Contracts: Principles and Policies in Tort and Contract* (London: Sweet and Maxwell, 1986), p.365.

⁷ M.L. McAlpine, "Construction Law: Will Design-Build Contracting Really Solve All of the Problems?" (1997) 76 *MI Bar Jnl.* 522 available online at <http://www.mcalpinelawfirm.com/CM/Articles/Michigan-Bar-Journal-June-1997.asp> [Accessed June 10, 2013].

⁸ C.G. Hammond, "Dealing with Defects: Defective Owner-Provided Preliminary Design in Design-Build Contracting" (1998) 15 *I.C.L.R.* 193, 196.

"fast track" construction. Efficiencies in the design and construction process may potentially reduce the overall price of the project. However, certain construction professionals maintain that the claims of earlier completion with design-build construction are exaggerated and that design-bid-build projects achieve similar completion times. This is, of course, the case where the employer undertakes a FEED study that is used for the purposes of tendering the turnkey or EPC contract.

As the responsibility for co-ordination of the project passes from the employer to the contractor, so does some of the control. The employer will experience a decrease in his day-to-day control of the construction of the works. As the contractor's control of the construction increases, so does his need to be experienced in the management of large-scale projects. This may include handling interfaces between multiple methods of construction, interfaces between different industries, and the various designs used by sub-contractors and suppliers.

Under the turnkey method of contracting, the tender stage takes on greater importance. Given the short time period available, it may be difficult for the employer to analyse properly each design at tender.⁹ Therefore, he will need to be extremely precise in his "request for tender" as to the performance and capacities desired from the works, (known, in the *Silver Book*, as the Employer's Requirements). The employer will need to spend a greater amount of resources on the tender stage to ensure the contractor and his proposed design are of the requisite quality. Similarly, the contractor may need to expend heavily on bid preparation to ensure the buildability of the project and the profitability of his bid price.¹⁰

The employer may choose to use a turnkey model for only part of the project (called "part-turnkey" or "semi-turnkey"). The co-ordination responsibility for the entire project will then either fall on the employer's consultants or the turnkey contractor. The contractor will, therefore, bear design responsibility for only a part of the works.¹¹ Thus, for example, the turnkey contractor can provide certain aspects of the works such as heavy civil facilities which require specialised design and attention, while the employer can contract on a design-bid-build basis for the finishing of the works and equipment systems.

This method decreases necessary interfaces, thus simplifying the co-ordination of the project. It may also separate the responsibility for differing types of work: for example, equipment systems work and heavy civil work, thus reducing contact between various industries not necessarily familiar with each other's working methods. The advantages and disadvantages of

⁹ M.L. McAlpine, "Construction Law: Will Design-Build Contracting Really Solve All of the Problems?" (1997) 76 *MI Bar Jnl.* 522, available online at: <http://www.mcalpinelawfirm.com/CM/Articles/Michigan-Bar-Journal-June-1997.asp> [Accessed June 10, 2013]; I.N.D. Wallace, "Design-and-Build: a No-No for Owners" (1999) 4 *Const. and Eng. L.* 7, 8.

¹⁰ For an outline of how this process might look under the *Silver Book*, see the applicable sections of the *FIDIC Guide*.

¹¹ I.N.D. Wallace, *Construction Contracts: Principles and Policies in Tort and Contract* (London: Sweet and Maxwell, 1986).

the part-turnkey model are generally the same as those for the turnkey and design-bid-build models, including considerations related to the combination of the two contract models.

Reference should also be made to a variant of the EPC construction methodology referred to as "EPCM" or "engineering, procurement and construction management". The essential difference between EPC and EPCM methodology is that the contractor assumes responsibility under an EPCM contract for supervision/management of construction but does not assume responsibility for the construction itself.

BOT (Build Operate Transfer)¹²

- 1-12 The typical BOT (along with its variants such as BOO (Build Own Operate), BLT (Build Lease Transfer) and others) contract encapsulates the process whereby a government grants a concession or similar right to a project development company to develop and operate what would normally be a public sector project, for a given period of time known as the concession period. The project development company obtains financing for the project, and then designs and constructs the facility; it then operates the facility during the agreed period and thereafter turns the plant over to the government. The parties generally intend that the income received by the project development company during the concession period (including, in certain circumstances, subsidies) will pay for the cost of financing and running the plant with an adequate return for the investors. These investors often include the contractor.¹³

Any BOT project involves a potentially complex contractual structure. However, in most cases, the BOT project will use a turnkey or EPC contract for the actual design and construction. Thus the BOT is not really a separate method of construction contracting, but rather a method of financing the project. Indeed, the lenders of the BOT projects have significant influence on the terms of the underlying construction contract, including the requirement that such a contract be turnkey and, often, in the form of an EPC contract.¹⁴

In a BOT project, the transferee is given the opportunity to verify the quality and quantity of output of the works. The project company can be required to provide the transferee's personnel with training prior to the transfer, thereby easing transition. The transferee will need to take care to uphold the operator's incentive to maintain properly the works, in order to avoid deterioration in the final period before transfer to the transferee (the operator, in an attempt to save on costs, may towards the end of the operating period decrease maintenance and operating expenditures resulting in accelerated deterioration of the works). In certain BOT projects, the

¹² For further analysis of this concept, in relation to the Silver Book, see Ch.4.

¹³ J. Scriven, "A Banking Perspective on Construction Risks in BOT Schemes" (1994) 11 I.C.L.R. 313, 314.

¹⁴ C. Wade, "History and Scope of the Three Major Books" (FIDIC, 1998), available online at: <http://oldwebsite.fidic.org/documents/launch/wade1.html> [Accessed July 3, 2013].

operator is required to assume defects liability for a limited period of time subsequent to the transfer.

A BOT project, in practice, is often not as simple as its definition implies. There may be a large number of parties. For example, in one hydroelectric project, the project development company (granted a concession by the government) entered into various contracts for the building of the facility, its operation and maintenance during the concession period and a power purchase agreement with an electrical utility. The construction of the facility was provided through a turnkey contract with a consortium of contractors. Each of the turnkey contractors was also an investor in the project development company. A subsidiary of one of these turnkey contractors also acted as the operator of the facility after completion. This complex structure is typical of power plant BOT projects in developing nations, as developing economies struggle to meet the dramatic increase in demand for energy (see Ch.4, The use of the FIDIC Silver Book in the context of a BOT project.).¹⁵

The increasing popularity of the BOT project is largely due to a shortage of public funding and the opinion that the facility will be more efficiently managed by a private entity.¹⁶ In theory, the BOT scheme provides developing countries with much-needed infrastructure at a reduced direct cost to the government.¹⁷ However, BOT projects are high-cost and high-risk ventures for private entities operating in a traditionally public domain.

The cost of tender being high, the project company members should take great care to examine the risks associated with the project prior to tendering. The project company will prefer an exclusive and specific mandate from a host country interested in the project and supportive of it.¹⁸ Project company members should have experience not only in constructing large projects but also in investing in and operating such projects.¹⁹

Where the grantor of a concession for a project is a political body, it takes on a further political risk in that the project is placed in the hands of an entity not necessarily affected by the political repercussions of its actions. The public may not understand that the grantor is removed from the day-to-day operations of the public service subject of a BOT project (e.g. an underground railway) and thus any mismanagement or politically unpopular decision may be imputed to the grantor. Although the contract may provide for grantor influence in the selection of personnel in order to ensure proper operation, the effectiveness of such influence may be practically minimal. The grantor will, thus, want to consider the independent status of the project development company and the potential effect that the company's actions may have on the grantor's political position and the public welfare.

¹⁵ D. Blumental, "Sources of Funds and Risk Management for International Energy Projects" (1998) 16 *Berk. J. Int'l Law* 267, available online at: <http://scholarship.law.berkeley.edu/cgi/viewcontent.cgi?article=1416&context=bjil> [Accessed June 10, 2013].

¹⁶ J. Scriven, "A Banking Perspective on Construction Risks in BOT Schemes" (1994) 11 I.C.L.R. 313, 314.

¹⁷ S.W. Stein, "Build-Own-Transfer (BOT) A Re-Evaluation" (1994) 2 I.C.L.R. 101.

¹⁸ K. Gurun, "Build-Own-Transfer Projects: The Contractor's Role in Risk Management", International Bar Association Conference in Tokyo, Japan, February 1993, 11.

¹⁹ S.W. Stein, "Build-Own-Transfer (BOT) A Re-Evaluation" (1994) 2 I.C.L.R. 101.

Banks and other financing institutions will make it a condition of their financing of a project that there is implementation of a contractual scheme that provides them with some certainty as to their financial risk. By using a lump-sum price and placing much (if not substantially all) of the completion risk on the contractor, the turnkey contract can provide the lenders with a significant amount of certainty and thereby confidence in the project. (A more detailed discussion of the issues can be found in Ch.4.) Some authors assert that the "contractor and employer are very likely to rely on the Silver Book as a good compromise approach".²⁰ This has certainly been the experience of the author on a significant number of projects.

Pricing Methods

1-15 Some of the most common methods of pricing a construction project are:

- (a) lump-sum;
- (b) cost-reimbursable; and
- (c) unit price.

They can be used alone or in combination. The selection of a pricing method directly affects the distribution of certain risks, such as "cost overruns" generally and changes in the cost of labour and materials.

Lump-sum method

1-16 The lump-sum method gives a price for the whole of the contract, irrespective of the contractor's as-built cost (with the exception of contractual entitlements to increases in such price for certain defined events beyond the control of the contractor). The difference between the price and the actual cost of the works to the contractor will constitute the contractor's profit or loss. The contractor assumes substantial risk, including the risk of most changes of circumstances (for example, a change in the price of materials or labour). Although most lump-sum contracts provide for modification of the price in certain limited circumstances, such contracts usually provide that the contractor may not claim additional payment for work indispensably necessary to completion, even where omitted from the specifications of the contract. The employer is therefore given a figure representing his global exposure, although this figure may be subject to adjustment as provided by the contract.

The contractor will usually be paid the lump-sum price in instalments. The instalments will be based on a schedule of payments or payable at

²⁰ C. Pedamon, "How is Convergence Best Achieved in International Project Finance?" (2001) 24 *Fordham Int'l L.J.* 1272, available online at: <http://ir.lawnet.fordham.edu/lcgilviewcontent.cgi?article=1764&context=ilj> [Accessed June 10, 2013].

specified stages of completion. In certain cases the lump-sum price may only be payable by the employer to the contractor upon completion, i.e. where completion is a condition precedent to payment.²¹

The lump sum is generally easier and less expensive to administer than the other pricing methods, as the price is clearly specified (although variations and other alterations to the contract and its price are still possible). Rather than having to calculate the pricing of completion based on the amount of construction units required or the extent of materials, equipment and services used (e.g. a calculation of the cost of construction), the parties need only refer to the lump-sum price.

The employer will need to provide for compilation and transfer of information concerning the site in order to enable the contractor to formulate a realistic lump-sum price. Construction contracts often provide that the contractor will not be required to go through the expense of verifying employer-supplied information. However, the contractor will almost invariably be required to investigate, or be deemed to have investigated, the site and the conditions present at the site. The time and cost associated with lump-sum tendering required of both parties will likely exceed the cost of tendering in contracts priced in accordance with actual cost.²²

The employer may require the contractor to provide him with a breakdown of the lump-sum price into specific amounts payable for different activities or portions of the works. In a tender process, this information will enable the employer to obtain a better understanding of the basis of the contractor's price. This breakdown will facilitate adjustment or revision of the contract price where provided for in the contract. It may also be used for the pricing of variations.

The lump-sum price regime does not allow for adjustment or revision of the contract price, unless specifically provided for in the contract. There may be adjustment for incorrect data provided by the employer, unforeseeable adverse sub-surface conditions, or changes in the works required by the employer. The employer may also decide to assume the risk of inflation and exchange rate risk. The parties should specify with clarity the situations in which adjustment is available.

Cost-reimbursable or cost-plus

Under cost-reimbursable conditions the employer pays the contractor for costs incurred plus a pre-determined margin of profit. The margin or fee can be fixed, fluctuating or determined as a percentage of actual costs. For example, the margin for building a tunnel may be a flat fee on completion, a percentage of the actual costs incurred in building the tunnel, or a fee that will fluctuate in accordance with some external measure such as the

²¹ A. Burns (ed.), *Construction Disputes: Liability and the Expert Witness* (London: Butterworths, 1989), p.26 (hereinafter *Construction Disputes*).

²² P.D. Marsh, *Contracting for Engineering and Construction Projects*, 5th edn (Farnham: Gower, 2001), p.164.

rate of inflation or the base rate of the central bank of the country in which the tunnel is built. This form of payment may create no incentive to work economically or rapidly, since, for example, the greater the cost, the greater the profit, irrespective of progress. In order to compensate for this lack of incentive the parties can include, as part of the pricing provisions of the contract, an incentive mechanism.

One example of an incentive mechanism is target cost. This mechanism may be implemented in a number of ways. One possibility is that any cost above a maximum "upset" or "target" cost will not receive any profit or "fee", and may incur a decrease in "fees" already earned.²³ To increase the incentive to finish within a given time period, the contract could also increase or decrease the fee in relation to the completion date of the project.²⁴

The cost-plus system is generally only used as a last resort, where it is impossible to calculate construction costs, such as tunnelling works. For example, the Eurotunnel project used a target cost mechanism for the tunnelling works. The construction contract awarded the contractor 50 per cent of the savings should the actual price be less than the target price. Where the actual price exceeded the target price then the contractor was liable for 30 per cent of the difference. The contractor's liability was limited to half of the fee, or 12.36 per cent of the contract price for such works.²⁵

1-19 Another method of reducing the employer's risk in respect of the cost reimbursement price is to apply a reasonableness standard. The contractor is then only compensated for costs reasonably expended. However, it may be difficult to determine the reasonableness of a given cost.²⁶ This difficulty arises in the pricing mechanism of any cost-reimbursable contract, requiring detailed provisions regarding verification and administration of the contractor's costs, detailed schedules, and care in eliminating the possibility that the contractor could make a profit at the costs level before the fee element has been calculated.²⁷ An employer becomes somewhat dependent on the reliability and efficiency of the contractor, despite protection placed in the body of the contract.²⁸

The contract may also provide that the employer pay to the contractor only the amount paid for materials and services actually used by the contractor (to take into account any over-ordering by the contractor and sub-contractors). The definition of costs may also take into consideration

²³ "See generally, I.N.D. Wallace, "Contracts for Industrial Plant Projects" (1984) 2 I.C.L.R. 322, 345.

²⁴ P.D. Marsh, *Contracting for Engineering and Construction Projects*, 5th edn (Gower, 2001), p.167.

²⁵ Huse, Kirkland and Shumway, "The Use of the Target Concept for Tunnelling Projects in Light of the Eurotunnel Experience", Options for Tunnelling Conference of the International Tunnelling Association, Amsterdam, the Netherlands, April 19-22, 1993, p.6.

²⁶ Huse, Kirkland and Shumway, "The Use of the Target Concept for Tunnelling Projects in Light of the Eurotunnel Experience", Options for Tunnelling Conference of the International Tunnelling Association, Amsterdam, the Netherlands, April 19-22, 1993, p.3.

²⁷ See generally, I.N.D. Wallace, "Contracts for Industrial Plant Projects" (1984) 2 I.C.L.R. 322, 345-346.

²⁸ A. Burns (ed.), *Construction Disputes: Liability and the Expert Witness* (London: Butterworths, 1989), p.26.

any discounts offered by suppliers. The obligation of the contractor to keep extensive records will provide some measure of protection for the employer in calculating costs.

Unit price or bill of quantities

According to the unit pricing method, the price of the project is calculated in accordance with the amount of work done. The price is established per unit of quantity with reference to a bill of quantities or a schedule included in the contract that specifies the amount of materials and labour needed for a particular task. This method places the risk of the number of units used on the employer but transfers risk of change in the cost or rate of each unit to the contractor.²⁹ Thus, if the cost of a unit of excavation in a tunnelling contract is provided at 100, the employer will pay where more units are excavated than expected. However, in the absence of unforeseeable adverse sub-surface conditions (assuming that the contract provides a changed conditions clause), the contractor is responsible for added cost where the unit of excavation costs more than 100.

The unit pricing method is common in construction contracts. Employers have traditionally used this method where the quantity of construction inputs is not ascertained at the time of contracting. Thus, for example, where the amount of concrete to be used for the construction of a building is not yet ascertained, the employer can price the contract in accordance with the cost of a unit of concrete. The contractor will then be compensated for the actual amount of concrete required, while the employer will be assured a fixed price per unit of concrete.

This method continues to be used extensively today, even in projects where the quantity of materials is certain. Certain publications, such as the *Standard Method of Measurement* in England (published by the Royal Institute of Chartered Surveyors), provide forms of schedules as a pricing method. Please note that the *Standard Method of Measurement* is being replaced by the *New Rules of Measurement*.

As with the lump-sum pricing mechanism, the parties may provide for a system of adjusting the unit price. The pricing mechanism may provide for changes beyond the parties' control, such as unforeseeable sub-surface conditions, or changes in law or regulations that affect some aspect of the contract. The contract may even provide for adjustment on the basis of changes in the cost of materials or labour. The ability of the contractor to obtain an adjustment to the contract price in respect of certain defined circumstances shifts the risk in respect of such circumstances from the contractor to the employer. The parties should, of course, define carefully any such circumstances and their potential impact on the unit price.

²⁹ Huse, Kirkland and Shumway, "The Use of the Target Concept for Tunnelling Projects in Light of the Eurotunnel Experience", Options for Tunnelling Conference of the International Tunnelling Association, Amsterdam, the Netherlands, April 19-22, 1993, p.3.

1-21 The parties will need to agree on a precise method of calculating the quantities used. Although the costs of valuation and measurement associated with a project carried out under a unit-priced contract are not as high as those of a similar project under a cost-reimbursable contract, they are still higher than those necessary under a lump-sum contract.

While a good idea in theory, and often in practice, parties should be wary of the potential for the bills of quantities system to be abused. After the Second World War, widespread usage of contracts of this type "rapidly produced a whole science of upward price manipulation bearing no relation to the site realities which lasted for decades due to the apathy of clients' legal advisors and the collusion of architects, engineers, etc".³⁰ Eventual disillusionment with the bill of quantities method is perhaps one of the reasons for the growing interest in, and popularity of, the turnkey (and therefore lump-sum) contracting method.

Bonus schemes and currency of the price

1-22 In addition to the pricing mechanism, the parties may want to add a bonus scheme to create an incentive for early completion. Such a bonus can be calculated in a manner similar to the calculation of liquidated damages, providing for a fixed amount or percentage of the contract price for each day of early completion. The employer may wish to defer payment of the bonus to the contractor until after the works have been operational for a period of time, such as after the defects liability period, to ensure proper performance of the works. Further, it is not normally advisable to use the bonus system in a cost-reimbursable contract without including a mechanism designed to eliminate any incentive that the contractor might have to construct using more costly methods in order to achieve early completion.

The parties will also need to consider the currency in which the price is paid. If the price is to be paid in the currency of the costs incurred by the contractor and such currency is different from the currency of the employer's country, then the employer carries the risk of a change in the exchange rate between the currency of the employer's country and the currency of the price. Where the currency of the price is the currency of the employer's country, then the contractor bears the risk of a change in the exchange rates. If the currency of the contract is a third currency, not that of the employer's country and not that of the costs incurred, then both parties will bear a portion of the risk of a change in exchange rates. In certain countries, the parties may also have to consider exchange control regulations, including restrictions on the currency of payment of a contract and restrictions on indexation tied to a currency other than the currency of the locale of the project.

Currency hedging may also be available to lay off part or all of the currency risk onto one or more financial institutions.

³⁰ I.N.D. Wallace, "Design-and-Build: a No-No for Owners" (1999) 4 *Const. and Eng. L.* 7.

Payment Methods

1-23 When considering the payment provisions of the contract, the parties must agree upon the methods of payment. The contract may provide for a certain portion of the price to be payable upon commencement of the works, through advance payments, in order to provide the contractor with sufficient cash flow to cover the substantial expenditures which may be required at the early stages of construction. For example, in a power plant project, advance payments may be provided for the purchase of certain equipment and machinery such as the generator and the turbines. The employer may also want a security to be provided for the amount of the advance payment. An advance payment guarantee for the amount can be provided by a third party much in the same way as a performance security, with the employer giving his consent to the guarantor chosen or a guarantor being indicated in the contract itself. The cost of the guarantee will lessen the benefit of the advance payment to the contractor, but may allow the employer to provide a larger sum than he would otherwise have supplied without the protection of the guarantee.

Where funds must be transferred to different locations the parties must consider risks relating to exchange rate fluctuation during transfer and the tax regulations concerning such transfers. The form of payment may also incorporate some guarantee of payment, such as the use of a letter of credit.

There exists a number of methods of payment, three of which are discussed below. The second and third methods are the most commonly used.

Payment after completion

1-24 The first is rare in large construction contracts, involving the payment of the contract price only after completion of the works involved. This method is more common for smaller sub-contracts or simple task-oriented contracts but it is not unknown on larger projects. When used on such large projects the payment after completion provides a form of contractor financing of the project, requiring the contractor to obtain outside financing himself or to auto-finance the construction. Sometimes this method will be used to finance a portion of the construction with payments extending well beyond completion of the construction.

Milestone payments

1-25 Under milestone payments the parties set up a schedule of tasks for the contractor to perform. For each milestone achieved, the contractor is paid a portion of the lump-sum price or an amount in accordance with rate schedules, bills of quantities or cost-plus pricing. Payment occurs only after completion of the tasks required. Milestone payments at specified

provision is contained in the Silver Book as written, other contracts do allow for bonuses. For example, the EIC Contract provides for a bonus for early completion calculated in a fashion similar to liquidated damages for each day that substantial completion is achieved before the time for completion up to a maximum limit (EIC 10.2). See also, ICC 37.6 and 37.7 and ENAA ca 5.7.

However, in certain circumstances the employer may not be concerned with early completion. If early completion will not benefit the employer, he has no reason to provide a bonus incentive. In fact, the employer may in some cases wish to prohibit early completion to avoid responsibility for the works during a gap period between taking over upon completion and commencement of commercial operations.

Nonetheless, the concept of a bonus for early completion combined with the control granted to the contractor in a design-build contract has had some notable success. After the earthquake of 1994 in Northridge, California, United States, the California Department of Transport contracted with a private contractor for the rebuilding of the Santa Monica Freeway on a design-build basis with a bonus for early completion. The construction was scheduled to take five months. The contractor finished the work in only two months and received approximately US\$15 million as a bonus.³

Completion delays

12-03 The parties to a construction contract will want to create a performance programme both to evaluate the progress of the project and to deal with any request by the contractor for an extension of the time for completion. The use of a programme allows the employer to regulate the completion time of the works during the course of the performance of the contract.⁴

The programme will break the project down into individual construction activities or steps. It shows the planned progress of the construction, including the interrelationships of each of the major construction activities. It allows the employer to oversee the construction and to ensure that the contractor progresses at the rate desired. In the event of delay, it can be used to analyse the effect on the time of completion with respect to a given activity. The employer may require the programme to be subject to his approval at first submission and when the contractor makes any amendments to the programme. The employer may also require the contractor to revise the programme with some frequency, particularly where the project is long-term. For example, on the Eurotunnel project, because of the long-term nature of the project and its technical complexity, the contractor was required to provide a revision of the programme at regular intervals, not exceeding three months (sub-clause 14(2)). The employer could also request a revision at any point in time.

³ Goldenhersh and Elder, "Design/Build Contracting for Caltrans", The Construction Superconference, San Francisco, U.S., December 7-8, 1995.

⁴ UNCITRAL, *UNCITRAL Legal Guide on Drawing Up International Contracts for the Construction of Industrial Works* (New York: UN, 1998) UNDOC. A/CN.9/SER.B/2, 114.

The contract must also provide for extensions of the time for performance when the progress of the works is delayed for certain causes not attributable to the contractor or his sub-contractors. This change in the time for completion will require a revision to the programme. The extension of time benefits the contractor in that he avoids liquidated damages from accruing when faced with certain causes of delay.⁵

The parties may wish to include the option for the employer to request an increase in the contractor's rate of construction (acceleration) in exchange for an increase in the contract price, when the project is delayed or behind schedule. The employer can require the contractor to give a proposal as to the cost of accelerating progress in order to complete on or near the original date for completion. The employer can then decide if he would rather extend the time for completion, or receive the works within the time frame originally agreed at a higher price. This same acceleration can occur where the delay in completion is the fault of the contractor with no consequent increase in the contract price.

In an effort to secure performance and define in advance the eventual consequences of breach by the contractor, contracts often contain liquidated damages clauses. These clauses specify the damages for certain breaches, the most common being liquidated damages for failure to attain the time for completion and liquidated damages for failure to meet pre-determined performance levels.

Parties should carefully examine the effects of the applicable law on any liquidated damages clause. Some legal systems do not allow such clauses in certain circumstances, while others allow their judges to reduce the agreed damages if they are grossly excessive.⁶ Under English law, a liquidated damages clause must not be a penalty, in *terrorem*, i.e. it must be a "genuinely covenanted pre-estimate of damage".⁷

A common method to assess and impose liquidated damages for delay is by use of a daily rate for specific failure, such as failure to complete on time, subject to some maximum limit. By using a daily rate, logically related to the continuing loss to the employer, the liquidated damages clause is less vulnerable to re-characterisation as an illegal penalty under the English⁸ and American legal systems.

⁵ Atkin Chambers, *Hudson's Building and Engineering Contracts*, 12th edn (London: Sweet and Maxwell, 2009), p.1172.

⁶ UNCITRAL, *UNCITRAL Legal Guide on Drawing Up International Contracts for the Construction of Industrial Works* (New York: UN, 1998) UNDOC. A/CN.9/SER.B/2, 220.

⁷ *Dunlop Pneumatic Tyre Co. Ltd. v New Garage and Motor Co. Ltd.* [1915] A.C. 79, 86, in Atkin Chambers, *Hudson's Building and Engineering Contracts*, 12th edn (London: Sweet and Maxwell, 2009), p.1134; UNCITRAL, *UNCITRAL Legal Guide on Drawing Up International Contracts for the Construction of Industrial Works* (New York: UN, 1998) UNDOC. A/CN.9/SER.B/2, 220; or in N.D.J. Henchie, "FIDIC Conditions of Contract for EPC Turnkey Projects—The Silver Book Problems in Store?" [2001] I.C.L.R. 41, 54.

⁸ *Hudson's Building and Engineering Contracts*, 12th edn (London: Sweet and Maxwell, 2009), p.1144.

Suspension by the employer

12-05 Many contracts, such as the Silver Book, allow the employer to suspend progress on the works at his discretion. The contract may enable the employer to suspend for any reason or may limit this power of suspension to certain grounds. The contract may also require the employer to specify the duration of any suspension for convenience. This time frame should remain very flexible to permit recommencement at the earliest possible date. If a suspension for the employer's convenience is limited to certain grounds, these grounds should be clearly set out in the contract.

If the employer is unable to state a reason for the suspension for which the contractor is responsible, it follows that the contractor should be entitled to an extension of the time for completion as well as the payment of any costs incurred due to the suspension. However, the contractor is not compensated for every case of suspension for which he is not directly responsible. The contract may provide that if the cause of the suspension was foreseeable by an experienced contractor as of the base date, then the contractor receives neither an extension of time nor an increase in the contract price. When the suspension is due to a cause attributable to the contractor, naturally he is not justified in receiving either compensation or an extension of time for the suspension. In either case, the contractor may also be required to preserve and protect the works from harm or damage during the period of suspension.

Suspensions by the employer should also be limited to a certain maximum number of consecutive days for each individual suspension and also to an overall total combined number of days of suspension. The contractor should also be able to request permission to proceed after some period of suspension prior to exercising his remedies for prolonged suspensions. For example, if permission to proceed is requested after a certain period of suspension and not granted or the request ignored, the contractor should enjoy certain remedies, such as right of contract termination. The exact procedures for this situation should be provided in detail.

12-06 It may also be the case that only a portion of the works is suspended. If the portion remains suspended for an extended period, the parties may wish to have such a suspension treated as an omission ordered by the employer. This would be similar to a variation or change order instructed by the employer. However, it is important that the omitted part does not have a material detrimental effect on the whole of the works.

Nonetheless, the employer will still want the works to satisfy as much of the original purpose of the project as possible. Therefore, the contractor will need to ensure that the contract is properly amended by a variation to take into consideration the effect that this omission will have on his performance obligations under the contract. This may include modification of any tests specified in the contract as well as the results required.

During an employer-ordered suspension there may be other issues involving transfer of risk. For example, provisions may be necessary to attribute responsibility for materials or plant that were scheduled to arrive but which

are being held up or still arriving despite the suspension. The contractor may be under an obligation towards a third party supplier or sub-contractor to receive shipment of these materials. Provisions should be included in the contract that deal with this situation in order to avoid the accumulation of costs on the contractor during a period where no interim payment occurs due to the suspension of the works.

Finally, the provisions relating to employer-ordered suspensions should include a description of any requirements or obligations of the parties relating to resumption of work after the suspension. The contractor may be required to make good any deterioration, defect or loss that occurred during the suspension. He should therefore be compensated for these costs and expenses to the extent that he was not the cause of the suspension nor negligent in his duties to protect and preserve the suspended works.

Suspension by the contractor

12-07 Although not contained in the Silver Book, there has been some discussion among industry commentators regarding a potential right to suspend the works by the contractor for convenience, similar to the employer's right. In a turnkey situation it is arguably unfair not to give the contractor some right of suspension given his greater design responsibility. For example, the contractor may want to suspend work for a certain period in order to reassess his design without breaching the contract.⁹ However, this is a radical position given the potential impact on the completion date and is something with which the author disagrees.

Discussion of Specific Sub-clauses

12-08 Clause 8 of the Silver Book, entitled "Commencement, Delays and Suspension", sets forth various clauses all relating in some way to the time for completing the works. The time requirements for commencing and completing the works are set forth in sub-clauses 8.1 and 8.2. Sub-clause 8.3 contains the Silver Book's extensive programme provisions. Sub-clauses 8.4 and 8.5 both deal with potential extensions of the time for completion. The chapter also sets forth the parties' rights and privileges on matters relating to the rate of progress (Silver Book sub-clause 8.6), liquidated damages for delay (Silver Book sub-clause 8.7), and suspension of the work by the employer (Silver Book sub-clauses 8.8-8.12).

⁹ B. Eggleston, *The ICE Design and Construct: a Commentary* (Australia: Blackwell Scientific Publications, 1994), p.235. Mr. Eggleston suggests that the way to deal with this under the ICE Contract is to persuade the employer's representative that he should order a suspension "for the proper construction and completion" of the works.

8.1 Commencement of Works

Unless otherwise stated in the Contract Agreement:

- (a) the Employer shall give the Contractor not less than 7 days' notice of the Commencement Date; and
- (b) the Commencement Date shall be within 42 days after the date on which the Contract comes into full force and effect under Sub-Clause 1.6 [Contract Agreement].

The Contractor shall commence the design and execution of the Works as soon as is reasonably practicable after the Commencement Date, and shall then proceed with the Works with due expedition and without delay.

Silver Book sub-clause 8.1 requires the employer to give the contractor seven days' notice of the commencement date, which must be within 42 days of the contract's entry into force. Under the Silver Book, the contract enters into full force and effect on the date stated in the contract (Silver Book sub-clause 1.6). The contractor is then under an obligation to commence design and execution as soon as is reasonably practicable after the commencement date. The Silver Book imposes a further obligation that the contractor proceed with due expedition and without delay.

The utility of this provision in the FIDIC contracts is somewhat limited. The specific commencement date does not directly affect the time for completion, which is a specific date under the FIDIC contract. Indeed, the *FIDIC Guide* recognises that "the date on which the works are completed is typically more important than the date on which they appear to be commenced".¹⁰ The *Guide* also indicates the difficulty in determining what constitutes commencement.

12-09 The commencement date notified by the employer primarily serves as a benchmark reference for other provisions in the contract. For example, it marks the date by which the employer must provide the contractor access to the site (Silver Book sub-clause 2.1). The contractor's representative must also be appointed and the time programme submitted prior to this date (Silver Book sub-clauses 4.3, 8.3). The contractor's provision of insurance coverage must also begin on the commencement date (Silver Book sub-clause 18.1). However, it does not serve as a reference for project milestones or for the time for completion.

Orange Book sub-clause 8.1 is very similar to the Silver Book provision in content but is less specific with regard to the exact number of days for notice and the time period within which the commencement date must fall. Under the Orange Book, the notice of the commencement date is given by the employer's representative to the contractor within the time stated in the appendix for tender.

Sub-clauses 8.1 of the Red and Yellow Book are identical to each other, with one small exception. Since the Red Book generally does not contem-

¹⁰ FIDIC, *The FIDIC Contracts Guide* (Lausanne: Fédération Internationale des Ingénieurs-Conseils, 2000), p.168.

plate design of the works by the contractor, the contractor's obligation is only to commence *execution* as soon as reasonably practicable after the commencement date, while under the Yellow Book both execution and design must be commenced. The Red and Yellow Book provisions are also nearly identical to the Silver Book, except that it is the engineer who gives the notice of commencement and the 42-day window for the commencement date runs from the contractor's receipt of the letter of acceptance rather than from the effective date of the contract.

The ENAA states that: "[t]he Contractor shall commence the Works within the period specified in Article 5.1 (Time for Commencement) of the Agreement and . . . the Contractor shall thereafter proceed with the Works in accordance with the time schedule specified in Appendix 9-7 (Time Schedule)" (ENAA 8.1). Article 5.1 of the ENAA contract agreement indicates that: "[t]he Contractor shall commence the Works within seven (7) days after the Fulfillment Date" (ENAA ca 5.1). "Fulfillment Date" means the date on which the conditions precedent provided in art.11 of the agreement have been fulfilled or, if no such conditions have been specified, the last agreement signature date.

The ICC provides that: "[u]nless otherwise agreed, the first Day of the Time to Taking-Over is calculated from the Day after the Start Date" (ICC 36.2). Conditions precedent to the "Start Date" include receipt by:

- (i) the contractor of any advance payment, evidence of the employer's financial arrangements and possession of the site, and
- (ii) the employer or the advance payment and performance guarantees. (ICC 36.3)

Similarly, the EIC requires that the contractor "commence the Design and the Works at the Commencement Date" (EIC 9.1). The commencement date is to be stated in the appendix to the contract (EIC 9.2). The EIC differs from the contracts discussed above in that it requires the contractor to proceed with the works with due expedition and without delay "[u]pon approval of the Final Design by the Owner", though the parties may agree that certain work be performed before that time (EIC 9.1).

The Infrastructure Conditions of Contract takes a more comprehensive approach to the commencement date, stating that it shall be "(a) the date specified in the Appendix to the Form of Tender or if no date is specified, (b) a date between 14 and 28 days of the award of the Contract to be notified to the Contractor by the Employer's Representative in writing or, (c) such other date as may be agreed between the parties" (Infrastructure Conditions of Contract 41(1)). Similar to the Silver Book, the Infrastructure Conditions of Contract indicate that the contractor "shall start the Works on or as soon as is reasonably practicable after the Commencement Date. Thereafter the Contractor shall proceed therewith with due expedition and without delay in accordance with the Contract." (Infrastructure Conditions of Contract 41(2))

The AIA provides that: "[t]he date of commencement of the Work shall be the date of this Agreement unless a different date is stated below or provision is made for the date to be fixed in a notice issued by the Owner" (AIA A.3.1).

The ConsensusDocs provides a fixed commencement date, which is to be the effective date of the agreement unless otherwise stipulated, for “the work” but contemplates in addition a notice to proceed from the employer prior to commencement of construction. In addition, “The Work shall proceed in general accordance with the Schedule of Work as such schedule may be amended from time to time” (ConsensusDocs 6.1). “Construction will commence upon the issuance by the Owner of a written notice to proceed.” (ConsensusDocs 3.2.1)

- 12-12 The DBIA states that “[t]he Work shall commence within five (5) days of Design-Builder’s receipt of Owner’s Notice to Proceed (“Date of Commencement”) unless the parties mutually agree otherwise in writing” (DBIA ca 5.1—see also DBIA 8.1.1).

8.2 Time for Completion

The Contractor shall complete the whole of the Works, and each Section (if any), within the Time for Completion for the Works or Section (as the case may be), including:

- (a) achieving the passing of the Tests on Completion, and
- (b) completing all work which is stated in the Contract as being required for the Works or Section to be considered to be completed for the purposes of taking-over under Sub-Clause 10.1 [Taking Over of the Works and Sections].

Silver Book sub-clause 8.2 requires the contractor to complete the works or section within the time for completion stated for the works or particular section. This provision states not only when “completion” must occur but also what completion entails. Under the Silver Book, “completion” includes passing the tests on completion and completing all work required prior to the employer’s taking over. However, this clause should be modified to state that the works or part will not be considered complete for the purposes of this clause until the taking-over certificate has been issued by the employer or is deemed to have been issued under the contract.

Orange Book sub-clause 8.2 is substantially the same as the Silver Book provision. However, it does not specifically state that all work required for the works to be taken over by the employer must be completed prior to the time for completion, though this may be implied. Sub-clause 8.2 of the Red and Yellow Books is identical to the Silver Book provision.

- 12-13 The ENAA requires the contractor to attain “Mechanical Completion” of the works with a specified number of months after the “Fulfillment Date” (ENAA ca 5.2, 8.2). The time requirements may also be fixed for the different sections if the project is so divided (ENAA ca 5.2, 8.2). In addition, the time for completion is subject to a specific guarantee by the contractor that he:

“shall attain Mechanical Completion of the Plant (or a part for which a separate time for completion is specified in the Agreement) within the Time for

Completion specified in Article 5.2 (Time for Completion) of the Agreement, or within such extended time to which the Contractor shall be entitled under GC 40 (Extension of Time for Completion).” (ENAA 26.1)

“Mechanical Completion” is defined under the ENAA as when the plant or specific part(s) have been completed “mechanically and structurally and put in a tight and clean condition, and that work in respect of Precommissioning of the Plant (or such specific part thereof) has been completed, and that the Plant or the specific part thereof is ready for Commissioning as provided in GC 24 (Mechanical Completion)” (ENAA 1).

The EIC’s provisions regarding the time for completion are more simplistic. It states that “[t]he whole of the Works shall be completed in accordance with the provisions of the Contract within the Time for Completion” (EIC 9.2). It defines “Time for Completion” as completion of the works up to the issue of the taking-over certificate (EIC 1.1(xxiii)).¹¹

The Infrastructure Conditions of Contract defines the time for completion in terms of “substantial completion”. It requires that:

“[t]he whole of the Works and any Section required to be completed within a particular time as stated in the Appendix to the Form of Tender shall be substantially completed within the time so stated (or such extended time as may be allowed under Clause 44 or revised time agreed under clause 46(3)) calculated from the Commencement Date.” (Infrastructure Conditions of Contract 43)

“Substantial completion” is not specifically defined under the Infrastructure Conditions of Contract but instead involves a notification by the contractor of substantial completion and the acceptance or non-acceptance of such by the employer’s representative under clause 48 in relation to the issuance of a certificate of substantial completion.

The AIA states that “[u]nless otherwise provided, Contract Time is the period of time, including authorized adjustments allotted in the Design-Build Documents for Substantial Completion of the Work” (AIA A.8.1.1). Further, “[t]ime limits stated in the Contract Documents are of the essence of the Design-Build Contract” (AIA A.8.2.1). The AIA defines substantial completion as “the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Design-Build Documents so that the Owner can occupy or use the Work or a portion thereof for its intended use” (AIA A.9.8.1).

The ConsensusDocs contemplate that “Substantial Completion” will be achieved within a specific period from the “Date of Commencement” and that “Final Completion” will be achieved within a specific period from the date of “Substantial Completion” (ConsensusDocs 6.2). The ConsensusDocs also states that time is of the essence (ConsensusDocs 6.2). As in the AIA, under the ConsensusDocs substantial completion of the works or of a designated portion is defined as “when construction is sufficiently complete in accordance with the Contract Documents so that the

¹¹ See Ch.14 for the EIC requirements for taking over.

Owner can occupy or utilize the Project, or a designated portion, for the use for which it is intended. . . ” (ConsensusDocs 2.3.19).

12-15 The DBIA contemplates that substantial completion of the works shall be achieved within a certain number of calendar days, as specified by the parties, after the date of commencement (DBIA ca 5.2.1). It also contains a section where interim milestones or substantial completion of identified portions can be set forth (DBIA ca 5.2.2). Under the DBIA: “Substantial Completion is the date on which the Work, or an agreed upon portion of the Work, is sufficiently complete so that Owner can occupy and use the Project or a portion thereof for its intended purposes.” (DBIA 1.2.11.) Finally, the contractor agrees that it will achieve the contract time(s) in accordance with the art.5 provisions discussed above (DBIA 8.1.1).

8.3 Programme

The Contractor shall submit a time programme to the Employer within 28 days after the Commencement Date. The Contractor shall also submit a revised programme whenever the previous programme is inconsistent with actual progress or with the Contractor’s obligations. Unless otherwise stated in the Contract, each programme shall include:

- (a) the order in which the Contractor intends to carry out the Works, including the anticipated timing of each major stage of the Works,
- (b) the periods for reviews under Sub-Clause 5.2 [Contractor’s Documents],
- (c) the sequence and timing of inspections and tests specified in the Contract, and
- (d) a supporting report which includes:
 - (i) a general description of the methods which the Contractor intends to adopt for the execution of each major stage of the Works, and
 - (ii) the approximate number of each class of Contractor’s Personnel and of each type of Contractor’s Equipment for each major stage.

Unless the Employer, within 21 days after receiving a programme, gives notice to the Contractor stating the extent to which it does not comply with the Contract, the Contractor shall proceed in accordance with the programme, subject to his other obligations under the Contract. The Employer’s Personnel shall be entitled to rely upon the programme when planning their activities.

The Contractor shall promptly give notice to the Employer of specific probable future events or circumstances which may adversely affect or delay the execution of the Works. In this event, or if the Employer gives notice to the Contractor that a programme fails (to the extent stated) to comply with the Contract or to be consistent with actual progress and the Contractor’s stated intentions, the Contractor shall submit a revised programme to the Employer in accordance with this Sub-Clause.

Silver Book sub-clause 8.3 requires the contractor to submit a performance programme to the employer within 28 days of the commencement

date. The contractor remains under an obligation to revise the programme whenever the current programme becomes inconsistent with the actual progress of the works or the contractor’s obligations. The employer may also require by notice a revision to the programme in the event of future events or circumstances that may adversely affect or delay the execution of the works. The contractor is under an ongoing obligation under this sub-clause to notify the employer of such events. Contractors may want to consider the possible impact of this notification requirement “on the starting point for calculating the notice periods under sub-clause 20.1 [*Contractor’s Claims*]” and, in the interests of fairness, contractors may want employers to be under a similar notification obligation.¹²

Sub-clause 8.3 also lists various things that must be included in the programme, such as the order and timing of the works’ execution, review periods, a report of the contractor’s work methods, and personnel and equipment for each major stage of the project. The contractor proceeds with the submitted programme unless the employer gives him notice of non-compliance within 21 days of its receipt. The employer may also require a revision if the programme becomes inconsistent with actual progress.

The Orange Book provisions regarding the work programme are found in its sub-clause 4.14. Under this sub-clause, the contractor must submit a programme to the employer’s representative within the time stated in the appendix to tender, not necessarily within 28 days of the commencement date, as in the Silver Book. The content of the programme is less comprehensive under Orange Book sub-clause 4.14 than under the Silver Book provision. For example, under the Orange Book a description of the contractor’s work methods is required only upon request of the employer’s representative. The Orange Book also states that the programme must be “developed using networking techniques, showing early start, late start, early finish and late finish dates” (Orange Book sub-clause 4.14). This has been eliminated from the corresponding Silver, Red and Yellow Book provisions whose origin is the Orange Book. Orange Book sub-clause 4.14 also does not contain the affirmative obligation for the contractor to inform the employer or his representative of specific future events or circumstances which may adversely affect or delay the work. In short, the Orange Book’s programme requirements are similar to the Silver Book but considerably less comprehensive.

Sub-clauses 8.3 of the Red and Yellow Books are nearly identical to the Silver Book provision. Both contain the obligation to submit a programme and to submit revisions when the current programme is inconsistent with actual progress or the contractor’s obligations. They also provide for the possibility of rejection of the programme within 21 days of submission, though the rejection is by the engineer under the Red and Yellow Books rather than by the employer. Like the Silver Book, these contracts also require the contractor to give prompt notice to the engineer of specific

¹² EIC, *The EIC Contractor’s Guide to the FIDIC Conditions of Contract for EPC Turnkey Projects*, 2nd edn (Berlin: EIC, 2003), p.21.

future events that may affect or delay execution. The Red and Yellow Books add that in this case the engineer may require an estimate of the anticipated effect and/or variation proposal. This would also be possible under the Silver Book's variation procedure in clause 13, but it is not specifically mentioned in Silver Book sub-clause 8.3.

The Red and Yellow Book sub-clauses 8.3 further differ from the Silver Book in that the content requirements for the programme are slightly more detailed. The Red and Yellow Book also differ slightly between each other regarding the content of the programme. However, the substance of the programme for all three contracts is still very similar.

12-17 The ENAA contains programme requirements similar to the Silver Book, yet less comprehensive. Within a mutually agreed time period, the contractor must:

“prepare and submit to the Owner a program of the Works showing the sequence in which it proposes to carry out the Works and the date by which the Contractor reasonably requires that the Owner shall have fulfilled its obligations under the Contract so as to enable the Contractor to execute the Works in accordance with the program and to achieve Mechanical Completion and Acceptance of the Plant in accordance with the Contract.” (ENAA 18.2)

The contractor remains under an obligation to revise the programme when appropriate and to submit all such revisions to the employer (ENAA 18.2). However, the ENAA contains no specific obligation that the contractor notify the employer of specific future events that may affect or delay execution of the works. The employer also does not have the unilateral power to require programme revisions, making this largely dependent upon the contractor's good faith. The ENAA programme provision has been criticised as allowing the contractor too much freedom regarding the schedule for performance.¹³

The ICC provides as follows:

“The Contractor shall normally, unless the circumstances do not require it, prepare a detailed programme for the performance of the Works and their interrelationship by using the “critical path method” or such other method/schedule as agreed (the “Time Schedule”). The Contractor shall submit the Time Schedule to the Employer not later than two months after the Start Date. The Time Schedule shall be updated monthly thereafter as part of a monthly progress report to reflect any changes to the Time Schedule. The Employer shall be entitled to comment on the Time Schedule and any update thereof and the Contractor agrees to consider in good faith any and all comments made by the Employer.” (ICC 38.4)

These provisions are relatively “contractor favourable” as compared to those of the Silver Book.

¹³ T. Wiwen-Nilsson, “A Brief View of the 1992 Edition of the ENAA Model Form-International Contract for Process Plant Construction (Turnkey Lump sum Basis)” (1994) 11 I.C.L.R. 526.

The EIC requires the contractor to provide the employer with a detailed work programme at the time of submission of the final design (EIC 4.5). The programme must show, inter alia, “the sequence and methods in which the Works are to be carried out” (EIC 4.5). Unlike the ENAA, the EIC does impose upon the contractor the obligation “to inform the Owner of any circumstances or conditions adversely affecting or which may adversely affect the execution of the Contract and . . . any circumstances and conditions which cause or which may be likely to cause significant alteration to the programme” (EIC 4.6). In this case, the contractor must promptly submit a revised programme to the employer taking account of such circumstances and conditions (EIC 4.6).

The Infrastructure Conditions of Contract indicates that the contractor must submit a programme within 21 days of the award of the contract to the employer's representative for his acceptance (Infrastructure Conditions of Contract 14(1)(a)). The programme must show the order in which the contractor proposes to carry out the works (Infrastructure Conditions of Contract 14(1)(a)), and the contractor must also provide at the same time his proposal generally describing the arrangements and methods of construction for carrying out the works (Infrastructure Conditions of Contract 14(1)(b)). Within 14 days of receipt, the employer's representative may reject the programme with reasons or request additional information (Infrastructure Conditions of Contract 14(2)). If the employer's representative rejects any programme, the contractor must submit a revised programme within 14 days of the rejection (Infrastructure Conditions of Contract 14(1)(c)). The employer's representative is also empowered to request a revised programme when it appears that “the actual progress of the work does not conform with the programme”, and the contractor has 14 days to comply (Infrastructure Conditions of Contract 14(4)). Submissions of programme revisions are also subject to the acceptance or rejection provisions for the initial program (Infrastructure Conditions of Contract 14(4)).

12-18

The AIA provides as follows:

“The Design-Builder, promptly after execution of the Design-Build Contract, shall prepare and submit for the Owner's information the Design-Builder's schedule for the Work. The schedule shall not exceed time limits and shall be in such detail as required under the Design-Build Documents, shall be revised at appropriate intervals as required by the conditions of the Work and Project, shall be related to the entire Project to the extent required by the Design-Build Documents, shall provide for expeditious and practicable execution of the Work and shall include allowances for periods of time required for the Owner's review and for approval of submissions by authorities having jurisdiction over the Project.” (AIA A.3.9.1)

Similarly, the ConsensusDocs do not require a detailed programme but only a schedule of work. It states that the contractor: “shall maintain the Schedule of Work. This schedule shall indicate the dates for the start and completion of the various stages of the construction, including the dates

when information and approvals are required from the Owner. It shall be revised as required by the conditions of the Work.” (ConsensusDocs 3.2.4)

12-19 The DBIA also requires a schedule for completion of the works. However, it contains requirements more analogous to those contained in the Silver Book:

“... Design-Builder shall prepare and submit, at least three (3) days prior to the meeting contemplated by Section 2.1.4 hereof,¹⁴ a schedule for the execution of the Work for Owner’s review and response. The schedule shall indicate the dates for the start and completion of the various stages of Work, including the dates when Owner information and approvals are required to enable Design-Builder to achieve the Contract Time(s). The schedule shall be revised as required by conditions and progress of the Work, but such revisions shall not relieve Design-Builder of its obligations to complete the Work within the Contract Time(s), as such dates may be adjusted in accordance with the Contract Documents. Owner’s review of, and response to, the schedule shall not be construed as relieving Design-Builder of its complete and exclusive control over the means, methods, sequences and techniques for executing the Work.” (DBIA 2.1.3)

8.4 Extension of Time for Completion

The Contractor shall be entitled subject to Sub-Clause 20.1 [Contractor’s Claims] to an extension of the Time for Completion if and to the extent that completion for the purposes of Sub-Clause 10.1 [Taking Over of the Works and Sections] is or will be delayed by any of the following causes:

- (a) a Variation (unless an adjustment to the Time for Completion has been agreed under Sub-Clause 13.3 [Variation Procedure]),
- (b) a cause of delay giving an entitlement to extension of time under a Sub-Clause of these Conditions, or
- (c) any delay, impediment or prevention caused by or attributable to the Employer, the Employer’s Personnel, or the Employer’s other contractors on the Site.

If the Contractor considers himself to be entitled to an extension of the Time for Completion, the Contractor shall give notice to the Employer in accordance with Sub-Clause 20.1 [Contractor’s Claims]. When determining each extension of time under Sub-Clause 20.1, the Employer shall review previous determinations and may increase, but shall not decrease, the total extension of time.

Silver Book sub-clause 8.4 sets forth the general provisions regarding extensions of the time for completion in favour of the contractor. It states that the contractor shall be entitled to an extension of the time for completion if taking-over is delayed for certain listed causes, namely variations, delays caused by or attributable to the employer and generally any other

¹⁴ Meeting under the DBIA held within seven days after agreement becomes effective to discuss contract administration.

cause of delay mentioned elsewhere in the contract as entitling the contractor to an extension of time. Any extension of time is subject to compliance with the procedure for contractor’s claims under sub-clause 20.1. Subpart (b) of Silver Book sub-clause 8.4 references other causes of delay for which the contractor is entitled to an extension of time for completion appearing at other points in the contract. A listing of these other causes is included in Figure 12.3 at the end of this chapter. To avoid unnecessary time extensions, the employer may wish to make entitlement to an extension conditional on proof that the delay will affect the “critical path” of the construction work. Contractors may be wise to consider the situations in which remedies such as time alone, time and cost, and time, cost and profit are available under the Silver Book. In the *EIC Guide*’s view, the logic of the Silver Book in this respect is difficult to follow.¹⁵

Orange Book sub-clause 8.3 is similar to the Silver Book provision. It indicates that the contractor is entitled to an extension of the time for completion in the event that delay is caused by a variation, any delay attributable to the employer, and any other cause referenced elsewhere in the contract as entitling the contractor to an extension of time. The Orange Book also specifies that an extension of time may be possible for delays caused by force majeure events and “physical conditions or circumstances on the Site, which are exceptionally adverse and were not (by the Base Date) foreseeable by an experienced contractor” (Orange Book sub-clause 8.3(d)). Whereas the Silver Book also allows an extension for force majeure events in its force majeure clauses, the latter Orange Book exception for exceptionally adverse physical conditions is not a ground for extension of time under the Silver Book. In addition, the Orange Book sub-clause does not make reference to a contractor’s claims clause for the procedure. Orange Book sub-clause 8.3 itself contains the applicable procedure for the contractor to follow when claiming an extension of time.

Red and Yellow Book sub-clauses 8.4 are identical in most respects to Silver Book sub-clause 8.4. In addition to a permissible extension for variations, the Red Book also indicates that the extension applies to variations as well as “other substantial change in the quantity of any item of work included in the Contract” (Red Book sub-clause 8.4(a)). The Red and Yellow Books also contain, in the relevant clause, two additional grounds for extensions of time not contained in the Silver Book. They allow an extension for “exceptionally adverse climatic conditions” and for “[u]nforeseeable shortages in the availability of personnel or Goods caused by epidemic or other governmental actions” (Red and Yellow Books sub-clauses 8.4(c), (d)). The Silver Book does not allow for time extensions due to climatic conditions unless these conditions represent a force majeure under clause 19.¹⁶ The *EIC Guide* is critical of this possibility and emphasises the qualitative difference between a contractual right to an extension

¹⁵ *The EIC Contractor’s Guide to the FIDIC Conditions of Contract for EPC Turnkey Projects*, 2nd edn (Berlin: EIC, 2003), p.22.

¹⁶ *The FIDIC Contracts Guide* (Lausanne: Fédération Internationale des Ingénieurs-Conseils, 2000), p.174.

protective orders limiting the dissemination and use of the confidential information. Nothing herein shall prevent any Party from objecting to the rule, regulation, or order requiring the disclosure.

- 59.3 The foregoing confidentiality obligation shall also apply to the contents of this Contract.
- 59.4 The confidentiality obligation created by this Article 59 shall continue for a period of four years after Final Acceptance.
- 59.5 Publications of any kind on or in any media (including electronic media) by a Party or initiated by a Party referring to the Works shall require the prior written approval of the other Party, which approval shall not unreasonably be withheld.

Article 60 Bribery, Gifts, Inducements or Rewards

- A1-62 60.1 The Parties hereby warrant, represent and undertake to each other that at the Date hereof, neither Party or its Sub-contractors, agents, officers or any third parties on their behalf, has offered, given, demanded, requested, accepted or agreed to any undue pecuniary or other advantage of any kind (or implied or inferred that they will or might do any such thing at any time in the future) in any way connected with the Contract or any other contract between the Parties (or any related parties).
- 60.2 The Parties agree that at all times throughout the course of the Contract and thereafter they will comply with and ensure that their Sub-contractors, agents, servants, employees and officers comply with the most current version of the ICC Rules of Conduct and Recommendations to Combat Extortion and Bribery in International Business Transactions, which are incorporated by reference into this Contract as if written out here in full.
- 60.3 The Parties specifically confirm that the CDB and/or arbitral tribunal, as the case may be, shall have the ability to determine the civil consequences of any alleged non-observance of this Article 60 to the exclusion of the (non-criminal) courts.
- 60.4 Notwithstanding any applicable laws, no fraud or other illegal conduct will discharge either Party from the Contract unless such conduct deprives the other of the whole, or substantially the whole, benefit of the Contract as a result of the action complained of and the Party alleging such conduct has terminated the Contract under Article 57.

Article 61 Entire Agreement, Severability and Amendments to the Contract

ENTIRE AGREEMENT

- A1-63 61.1 The Contract constitutes the entire agreement between the Parties with respect to the subject matter of the Contract and supersedes

all communications, representations, negotiations and agreements (whether written or oral) of the Parties with respect thereto made prior to the Date of the Contract that are not incorporated by writing into the Contract.

MODIFICATIONS TO THE CONTRACT

- 61.2 Any changes to this Contract must be evidenced in writing. No written communication or action by either Party shall be effective to modify or amend the Contract, unless the Parties have expressly agreed or impliedly acknowledged in written communications between them that the Contract should be or has been so modified or amended.
- 61.3 If any provision or condition of the Contract is prohibited or rendered invalid or unenforceable, such prohibition, invalidity or unenforceability shall not affect the validity or enforceability of any other provision or condition of the Contract or its performance in a jurisdiction where it is not prohibited or rendered invalid. Further, to the extent possible, the provision or condition will be replaced through agreement or by the CDB and/or arbitral tribunal, as the case may be, by a valid and enforceable provision or condition with the same or a similar result.
- 61.4 Neither Party waives any of its rights under this Contract by failing to exercise them. Individual waivers do not amount to a general waiver.

ALLEGING LACK OF CAPACITY

- 61.5 Each Party warrants that, once work has commenced on Site, it will not allege that the person or persons who signed the Contract on behalf of that Party lacked the capacity or authority to execute the Contract, or that there was some other formal invalidity or incapacity that affected the validity or enforceability of the Contract against that Party. In particular, actual or alleged lack of governmental or managing board authorizations or permits shall not excuse non-performance or non-observance of the Contract by a Party.
- 61.6 If a Party named in the Contract does not have separate legal personality under the laws governing its status, the definition of the Party bound by this Contract includes any organization of which it is a part that does have separate legal personality.

WAIVER OF SOVEREIGN IMMUNITY AND SIMILAR PRIVILEGES

- 61.7 Any sovereign immunity or immunity from execution or attachment is hereby waived by both Parties to this Contract. It is agreed that this Contract is a commercial transaction under international law and that governmental or state bodies entering into this Contract do so with the intention of making the Contract effective in accordance with its terms and so hereby waive any and all sovereign immunity, immunity from attachment or administrative law requirements that otherwise might have applied to them.

Article 62 Joint and Several Liability

- A1-64 62.1 If either Party constitutes (under applicable laws) a joint venture, consortium, partnership or other unincorporated grouping of two or more persons, however it is described:
- (a) those persons shall be deemed to be jointly and severally liable to the other Party for the performance of the Contract; and
 - (b) those persons shall notify the other Party of their leader, who shall have authority to bind that Party and each of those persons.
- 62.2 Neither Party to this Contract nor the members of the unincorporated grouping described in Article 62.1 shall alter its legal status or divest itself of legal responsibility for its obligations under the Contract without the written consent of the other Party.

Article 63 Sub-contractor Notification and Responsibility and Assignment of Sub-contractor's Obligations

- A1-65 63.1 Neither Party shall subcontract the whole of the Contract without the knowledge and express written agreement of the other Party. Each Party shall be responsible for the acts or defaults of its Sub-contractors, agents, officers or employees while performing the Contract as if they were the acts or defaults of the Party.
- 63.2 Where agreed by the Parties at the Contract Date or where the Sub-contractor is named in the Contract, the Contractor shall give the Employer not less than 28 Days' notice of:
- (a) the intended appointment of a Sub-contractor, with reasonably detailed particulars of the category of work, which shall include its relevant experience; and
 - (b) the intended commencement of the Sub-contractor's work on the Site.
- 63.3 Except where otherwise agreed in this Contract, neither Party has any other rights in relation to the appointment, terms of engagement, scope of work or any other aspects of a Sub-contractor's work.

ASSIGNMENT OF SUB-CONTRACTOR'S OBLIGATIONS

- 63.4 If a Sub-contractor has undertaken a continuing and assignable obligation to the Contractor for the Works designed or executed, or goods, materials or Plant supplied by that Sub-contractor, and if the obligation extends beyond the expiry of the last Defect Correction Period, the Contractor shall, upon the expiry of the last Defect Correction Period, and if requested so to do, assign the benefit of such obligation to the Employer for its unexpired duration. Any such assignment shall be at the expense of the Employer.

Article 64 Assignment of the Contract by either Party

- 64.1 Neither Party shall, without the express written consent of the other Party, which consent shall not be unreasonably withheld, assign to any third party the Contract or a part thereof or any right, benefit, obligation or interest therein, except that each of the Parties shall be able to assign either absolutely or by way of charge any money payable to it, which may become payable under the Contract. A1-66
- 64.2 Sub-contracting is not considered to be assignment.

Article 65 Communications, including Notices and Consents

- 65.1 Wherever the Conditions of Contract provide for the giving or issuing of approvals, certificates, consents, decisions, notices, notifications and/or requests, these communications shall be: A1-67
- (a) in writing and delivered by hand (against receipt), sent by mail or courier, or transmitted by facsimile, electronic mail with confirmation of receipt, or any other system of electronic transmission or storage of information used by the Parties; and
 - (b) delivered, sent or transmitted to the address for the recipient's communications as stated elsewhere in the Contract (the Schedule of Contractual Amendments) or otherwise normally used. However, if the recipient:
 - (i) gives notice of another address, communication shall thereafter be delivered accordingly; and
 - (ii) has not stated otherwise when requesting an approval or consent, it may also be sent to the address from which the request was issued.
- 65.2 Approvals, certificates, consents, decisions, requests, notices and/or notifications shall not be unreasonably withheld or delayed by either Party.
- 65.3 Any notice or other communication served by hand, fax, e-mail or post shall be deemed to have been received:
- (a) in the case of delivery by hand or by courier, when delivered against an acknowledgement of receipt;
 - (b) in the case of fax or e-mail (with confirmation of receipt requested) sent to the correct delivery address, the next local Business Day following the Day of successful transmission; or
 - (c) in the case of registered mail with a return receipt, at 11:00 on the Date of actual receipt,
- provided that in each case where delivery by hand, courier or by fax occurs after 18:00 on a Business Day, or on a Day that is not a Business Day, delivery shall be deemed to occur at 9:00 on the next following Business Day. References to time in this Article 65 are to local time and Business Days in the country of the intended recipient.

approves the document subject to modification(s), the Contractor may either accept the modification(s), whereupon the document shall be deemed to have been approved, further modify the document and re-submit it for the Owner's approval in accordance with GC 20.3.2 or dispute the modification(s) in accordance with GC 6 (Settlement of Disputes).

20.3.5 The Owner's approval, either with or without modification(s), of the document furnished by the Contractor shall not relieve the Contractor of any responsibility or liability imposed upon it by any provisions of the Contract.

20.3.6 The Contractor shall not depart from any approved document unless the Contractor has first submitted to the Owner an amended document and obtained the Owner's approval thereof pursuant to the provisions of this GC 20.3.

If the Owner requests any change in any already approved document and/or in any document based thereon, the provisions of GC 39 (Change in the Works) shall apply to such request.

GC 21. Procurement

A2-36 21.1 Materials

Subject to GC 14.2, the Contractor shall procure and transport to the Site all the Materials in an expeditious and orderly manner.

21.2 Owner-supplied Equipment and Materials

If Appendix 9-3 (Scope of Works and Supply by the Owner) provides that the Owner shall in connection with the Plant and/or the Works furnish to the Contractor any specific items of machinery, equipment or materials, the following provisions shall apply:

21.2.1 The Owner shall at its own risk and expense transport each item to the place on or near the Site as agreed upon by the parties and make available to the Contractor such item at the time specified in the program furnished by the Contractor pursuant to GC 18.2 (Program of Works) unless otherwise mutually agreed.

21.2.2 Upon receipt of such item, the Contractor shall inspect the same visually and shall notify the Owner of any shortage, defect or default, if detected. The Owner shall immediately remedy any shortage, defect or default, or the Contractor shall, if such be practicable and possible, at the request of the Owner, remedy such shortage, defect or default at the Owner's cost and expense. After inspection such item shall fall under the care, custody and control of the Contractor. The provisions of this GC 21.2.2 shall apply to any item supplied to remedy any such shortage or default or in substitution for any defective item or to defective items which have been repaired.

21.2.3 The foregoing responsibilities of the Contractor and its obligations of care, custody and control shall not relieve the Owner of liability for any undetected shortage, defect or default, nor place

the Contractor under any liability for any such shortage, defect or default whether under GC 27 (Defect Liability) or any other provision of the Contract.

21.3 Long Lead Items

21.3.1 If Appendix 9-8 (List of Vendors for Major Equipment and Materials) provides that a purchase order or contract for any specific item of machinery, equipment or materials which has been placed or entered into by the Owner before the date of the Agreement is to be assigned to the Contractor by the Owner or novated in favor of the Contractor, then, subject to this GC 21.3, the Owner, the Contractor and, where appropriate, the vendor shall enter into an agreement for assignment or novation whereby the rights and obligations of the Owner under such purchase order or contract shall be assigned to the Contractor or the Contractor shall by novation assume such rights and obligations within twenty-one (21) days after the Fulfillment Date or within such other period as may be agreed between the Owner, the Contractor and, where appropriate, the vendor. Such items are referred to in the Contract as "Long Lead Items" and after assignment or novation of the purchase order or contract shall be included within the definition of "Materials" set out in GC 1 (Definitions).

21.3.2 At the time of signing of the Agreement, the Owner shall supply to the Contractor for its review all documents relating to such purchase order or contract (including quotations, terms and conditions and specifications) and if the Contractor wishes to make any modifications to the terms and conditions of the purchase order or contract, the Owner shall use its best endeavors to obtain such modifications.

21.3.3 Within twenty-one (21) days of the receipt of all documents relating to such purchase order or contract from the Owner or within such other period as may be agreed between the Owner and the Contractor, the Contractor may propose amendments to the Contract including exclusions from or relaxations of the specific obligations and liabilities assumed by the Contractor under the Contract with respect to such Long Lead Items, on the grounds that the vendor's performance warranties are not acceptable to the Contractor or the proposed terms of the purchase order or contract are not compatible with the Contract.

In the event that the Owner and the Contractor fail to agree upon such amendments within thirty (30) days of the Contractor's proposal, then (notwithstanding any contrary provisions in the Contract) such assignment or novation shall not take place and the Long Lead Items in question shall be treated as Owner-supplied equipment and materials in accordance with GC 21.2 (Owner-supplied Equipment and Materials).

21.3.4 Subject to such amendments to the Contract as have been agreed

pursuant to GC 21.3.3, the Contractor shall, after assignment or novation of the relevant purchase order or contract, assume responsibility to the Owner for such Long Lead Items.

21.3.5 All necessary costs for transportation, erection and commissioning of the Long Lead Items to be incurred subsequent to their delivery by the vendor are included in the Contract Price. Except for these, upon assignment or novation as provided in GC 21.3.1, all costs and expenses incurred by the Contractor relating to the acquisition of the Long Lead Items including the purchase price therefor and all costs relating to the administration, review of vendor drawings, expediting and inspection of the Long Lead Items shall be added to the Contract Price as if the assignment or novation were the result of a Change Order issued by the Owner in accordance with GC 39 (Change in the Works). Provided that if the Owner has made any payment to the vendors of the Long Lead Items prior to the assignment or novation, then such payment shall be deemed to have been made by the Owner to the vendors on behalf of the Contractor.

21.4 Transportation

21.4.1 The Contractor shall at its own risk and expense transport all Materials and Construction Equipment and Facilities to the Site.

21.4.2 Unless otherwise provided in the Contract, the Contractor shall be entitled to select any mode of transport operated by any person to carry the Materials and Construction Equipment and Facilities.

21.4.3 Upon dispatch of each shipment of Materials and Construction Equipment and Facilities, the Contractor shall notify the Owner by facsimile or email of the description of the Materials and/or Construction Equipment and Facilities, the point and means of dispatch and the estimated time and point of arrival in the country where the Site is located, if applicable, and at the Site. The Contractor shall furnish the Owner with relevant shipping documents to be agreed upon between the parties.

21.4.4 The Contractor shall be responsible for obtaining, if necessary, approvals from the competent authorities for transportation of all Materials and/or Construction Equipment and Facilities to the Site. The Owner shall use its best endeavors in a timely and expeditious manner to assist the Contractor in obtaining such approvals, if requested by the Contractor. The Contractor shall indemnify and hold harmless the Owner from and against any claim for damage to roads, bridges or any other traffic facilities which may be caused by the transport of Materials and/or Construction Equipment and Facilities to the Site.

21.5 Customs Clearance

The Contractor shall, at its own expense, handle all imported Materials and Construction Equipment and Facilities at the point(s) of import and any formalities for customs clearance, subject to the

Owner's obligations under GC 14.2, and provided that if applicable laws or regulations require any application or act to be made by or in the name of the Owner, the Owner shall take all necessary steps to comply with such laws or regulations.

GC 22. Construction

22.1 Setting Out/Supervision/Labor

22.1.1 Bench Mark

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The Contractor shall be responsible for the true and proper setting-out of the Works in relation to bench marks, reference marks and lines provided to it in writing by the Owner.

If, at any time during the progress of the Works any error shall appear in the position, level or alignment of the Works, the Contractor shall forthwith notify the Owner of such error and, at its own expense, immediately rectify such error to the reasonable satisfaction of the Owner, unless such error is based on incorrect data provided in writing by or on behalf of the Owner, in which case the expense of rectifying the same shall be borne by the Owner.

22.1.2 Contractor's Supervision

The Contractor shall give or provide all necessary superintendence during the execution of the Works, and the Construction Manager or his deputy shall be constantly on the Site to provide full-time superintendence of the Works. The Contractor shall provide and employ only such technical personnel as are skilled and experienced in their respective callings and such supervisory staff as are competent to give adequate supervision to the work they are required to supervise.

22.1.3 Labor

- (a) The Contractor shall provide and employ on the Site in the execution of the Works such skilled, semi-skilled and unskilled labor as is necessary for the proper and timely execution of the Works.
- (b) Unless otherwise provided in the Contract, the Contractor shall be responsible for the recruitment, transportation, accommodation and catering of all labor, local or expatriate, required for the execution of the Works and for all payments in connection therewith.
- (c) Subject to GC 10.4, the Contractor shall be responsible for obtaining all necessary permit(s) or visa(s) from the appropriate authorities for the entry of all labor and personnel to be employed on the Site into the country where the Site is located.
- (d) The Contractor shall at its own expense be responsible for the repatriation of all its and its Sub-contractor's personnel

employed upon the Works at the Site to the countries from which they were recruited. The Contractor shall be responsible for the suitable maintenance of all such persons from the cessation of their employment on the Works to their departure from the country where the Site is located and in default the Owner may repatriate and maintain such persons and recover the cost of doing so from the Contractor.

- (e) The Contractor shall at all times during the progress of the Works use its best endeavors to prevent any unlawful, riotous or disorderly conduct or behavior by or amongst its employees and the employees of its Sub-contractors.
- (f) The Contractor shall, in all dealings with its labor and the labor of its Sub-contractors for the time being employed on or in connection with the Works, pay due regard to all recognized festivals, official holidays and religious or other customs.

22.2 Construction Equipment and Facilities

22.2.1 All Construction Equipment and Facilities brought by the Contractor on to the Site shall be deemed to be intended to be used exclusively for the execution of the Works and the Contractor shall not remove the same from the Site until such Construction Equipment and Facilities are no longer required for the execution of the Works.

22.2.2 Unless otherwise specified in the Contract, upon completion of the Works, the Contractor shall remove from the Site all Construction Equipment and Facilities brought by the Contractor on to the Site and any surplus materials remaining thereon.

22.2.3 The Owner will, if requested, use its best endeavors to assist the Contractor in obtaining any local, state or national government permission required by the Contractor for the export of Construction Equipment and Facilities imported by the Contractor for use in the execution of the Works which are no longer required for the execution of the Works.

22.3 Site Regulations and Safety

The Owner and the Contractor shall establish Site regulations setting out the rules to be observed in the execution of the Works at the Site and shall comply therewith. The Contractor shall prepare and submit to the Owner proposed Site regulations for the Owner's approval which approval shall not be unreasonably withheld.

Such Site regulations shall include, but not be limited to, rules in respect of:

- (a) Security
- (b) Safety of works
- (c) Gate control
- (d) Sanitation
- (e) Medical care
- (f) Fire prevention

22.4 Opportunities for Other Contractors

The Contractor shall, upon written request from the Owner, give all reasonable opportunities for carrying out their work to any other contractors employed by the Owner on or near the Site, except where and to the extent that any such work may cause any delay in the Works. If the Contractor shall, upon written request from the Owner, make available to any such other contractors any roads or ways for the maintenance of which the Contractor is responsible, or permit the use by such other contractors of any Construction Equipment and Facilities, or provide any other service of whatsoever nature for such other contractors, the Owner shall fully compensate the Contractor for any loss or damage caused or occasioned by such other contractors in respect of any such use or service and shall pay to the Contractor reasonable remuneration for the use of such equipment or the provision of such services.

22.5 Emergency Work

If, by reason of an emergency arising in connection with and during the execution of the Works, any protective or remedial work shall be necessary as a matter of urgency to prevent damage to the Works, the Contractor shall immediately carry out such work.

If the Contractor is unable or unwilling to do such work immediately, the Owner may do or cause to be done such work as the Owner may determine is necessary in order to prevent damage to the Works. In such event the Owner shall, as soon as practicable after the occurrence of any such emergency, notify the Contractor in writing of such emergency, the work done and the reasons therefor. If the work done or caused to be done by the Owner is work which the Contractor was liable to do at its own expense under the Contract, the reasonable costs incurred by the Owner in connection therewith shall be paid by the Contractor to the Owner.

22.6 Site Clearance

22.6.1 Site Clearance in Course of Works

In the course of carrying out the Works, the Contractor shall keep the Site reasonably free from all unnecessary obstruction, and shall store or remove any surplus materials, clear away from the Site any wreckage, rubbish or temporary works and remove any Construction Equipment and Facilities no longer required for the execution of the Works.

22.6.2 Clearance of Site after Acceptance

After Acceptance of all parts of the Plant by the Owner, the Contractor shall clear away and remove from the Site any wreckage, rubbish and debris of any kind, and leave the Site and the Plant in a clean and safe condition.

22.7 Watching and Lighting

The Contractor shall provide and maintain at its own expense all lighting, fencing and watching when and where necessary for the proper execution and the protection of the Works, or for the safety of the owners and occupiers of adjacent property and the public.

22.8 Work at Night and on Holidays

22.8.1 Unless otherwise provided in the Contract, none of the work shall be carried out during the night and on public holidays of the country where the Site is located without the prior written consent of the Owner, except where the work is necessary or required to ensure the safety of the Works or for the protection of life or to prevent loss of or damage to property, when the Contractor shall immediately advise the Owner. Provided that the provision of this GC 22.8.1 shall not apply to any work which is customarily carried out by rotary or double-shifts.

22.8.2 Notwithstanding GC 22.8.1 or GC 22.1.3 (Labor), if and when the Contractor considers it to be necessary to carry out work at night or on public holidays so as to meet the Time for Completion, and requests the Owner's consent thereto, the Owner shall not unreasonably withhold such consent.

A2-38 GC 23. Test and Inspection

23.1 The Contractor shall, at its own expense, carry out at the place of manufacture and/or on the Site all such tests and/or inspections of the Materials and any part of the Works as are specified in the Contract.

23.2 The Owner shall be entitled to attend the aforesaid tests and/or inspections by its own duly authorized and designated inspector, provided that the Owner shall bear all costs and expenses incurred in connection with such attendance including, but not limited to, all traveling and board and lodging expenses.

23.3 Whenever the Contractor is ready to carry out any such test and/or inspection, the Contractor shall give a reasonable advance notice of such test and/or inspection and of the place and time thereof. The Contractor shall obtain from any relevant third party or manufacturer any necessary permission or consent to enable the Owner's inspector to attend the test and/or inspection.

23.4 The Contractor shall provide the Owner with a certified report of the results of any such test and/or inspection. If the Owner's inspector fails to attend the test and/or inspection, or if it is agreed between the parties that the Owner's inspector shall not do so, then the Contractor may proceed with the test and/or inspection in the absence of the Owner's inspector and provide the Owner with a certified report of the results thereof.

23.5 The Owner may require the Contractor to carry out any test and/or inspection not described in the Contract, provided that no such

test and/or inspection impedes the progress of the Works and/or the Contractor's performance of its other obligations under the Contract, and provided further that the Contractor's reasonable costs and expense incurred in the carrying out of such test and/or inspection shall be added to the Contract Price.

23.6 If any Materials or any part of the Works fails to pass any test and/or inspection, the Contractor shall either make good such Materials or part of the Works and shall repeat the test and/or inspection after first giving a notice under GC 23.3.

23.7 The Contractor shall afford the Owner, at the latter's expense, access at any reasonable time to any place where the Materials are being manufactured or the Works are being executed in order to inspect the progress and the manner of manufacture or construction, provided that the Owner shall give the Contractor reasonable prior notice.

23.8 The Contractor agrees that neither the execution of a test and/or inspection of Materials or any part of the Works, nor the attendance by the Owner's inspector, nor the issue of any test certificate pursuant to GC 23.4, shall release the Contractor from any other responsibilities under the Contract.

23.9 No part of the Works or foundations shall be covered up on the Site without carrying out any test and/or inspection required under the Contract and the Contractor shall give reasonable notice to the Owner whenever any such part of the Works or foundations are ready or about to be ready for test and/or inspection; such test and/or inspection and notice thereof shall be subject to the requirements of the Contract.

23.10 The Contractor shall uncover any part of the Works or foundations or make openings in or through the same as the Owner may from time to time require at the Site and shall reinstate and make good such part or parts.

If any part of the Works or foundations have been covered up at the Site after compliance with the requirement of GC 23.9 and are found to be executed in accordance with the Contract, the expenses of uncovering, making openings in or through, reinstating and making good the same shall be borne by the Owner, and the Time for Completion shall be reasonably adjusted to the extent that the Contractor has thereby been delayed or impeded in the performance of any of its obligations under the Contract.

GC 24. Mechanical Completion

24.1 As soon as the Plant or any part thereof has, in the opinion of the Contractor, been completed mechanically and structurally and put in a tight and clean condition, as specified in Appendix 9-5 (Technical Specifications), excluding such minor items as finishing of insulation and painting, and other items not materially affecting the operation or safety of the Plant, the Contractor shall so notify the Owner in writing.

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- 24.2 Within seven (7) days after receipt of the notice from the Contractor under GC 24.1, the Owner shall supply the operating and maintenance personnel specified in Appendix 9-3 (Scope of Works and Supply by the Owner) for Precommissioning of the Plant or any part thereof.
- Pursuant to Appendix 9-3 (Scope of Works and Supply by the Owner), the Owner shall also provide, within the said seven (7) day period, the raw materials, utilities, lubricants, chemicals, catalysts, facilities, services and other matters required for Precommissioning of the Plant or any part thereof.
- 24.3 As soon as is reasonably practicable after the operating and maintenance personnel have been supplied by the Owner and the raw materials, utilities, lubricants, chemicals, catalysts, facilities, and services and other matters have been provided by the Owner in accordance with GC 24.2, the Contractor shall commence Precommissioning of the Plant or the relevant part thereof in preparation for Commissioning.
- 24.4 As soon as all works in respect of Precommissioning are completed and, in the opinion of the Contractor, the Plant or any part thereof is ready for Commissioning, the Contractor shall so notify the Owner in writing.
- 24.5 The Owner shall, within fourteen (14) days after receipt of the Contractor's notice under GC 24.4, either issue a Mechanical Completion Certificate in the form specified in Schedule 1 hereto stating that the Plant or that part thereof has reached Mechanical Completion as at the date of the Contractor's notice under GC 24.4, or notify the Contractor in writing of any defects and/or deficiencies.
- If the Owner notifies the Contractor of any defects and/or deficiencies, the Contractor shall then correct such defects and/or deficiencies and shall repeat the procedure described in GC 24.4.
- If the Owner is satisfied that the Plant or that part thereof has reached Mechanical Completion, the Owner shall, within seven (7) days after receipt of the Contractor's repeated notice, issue a Mechanical Completion Certificate stating that the Plant or that part thereof has reached Mechanical Completion as at the date of the Contractor's repeated notice.
- If the Owner is not so satisfied, then it shall notify the Contractor in writing of any defects and/or deficiencies within seven (7) days after receipt of the Contractor's repeated notice and the above procedure shall be repeated.
- 24.6 If the Owner fails to issue the Mechanical Completion Certificate and fails to inform the Contractor of any defects and/or deficiencies within fourteen (14) days after receipt of the Contractor's notice under GC 24.4 or within seven (7) days after receipt of the Contractor's repeated notice under GC 24.5, then the Plant or that part thereof shall be deemed to have reached Mechanical

Completion as at the date of the Contractor's notice or repeated notice, as the case may be.

- 24.7 As soon as possible after Mechanical Completion, the Contractor shall complete such minor items as finishing of insulation and painting, and other items not materially affecting the operation or safety of the Plant.

GC 25. Commissioning and Acceptance

25.1 Commissioning

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- 25.1.1 Commissioning of the Plant or any part thereof shall be commenced by the Contractor immediately after issue by the Owner of the Mechanical Completion Certificate pursuant to GC 24.5 or deemed Mechanical Completion under GC 24.6. Commissioning consists of the work specified in the Work Procedures (WP 10 - Commissioning and Performance Test Procedure).

- 25.1.2 During Commissioning, the Owner shall supply, for use by the Contractor, the operating and maintenance personnel, raw materials, utilities, lubricants, chemicals, catalysts, facilities, services and other matters required for the operation of the Plant or any part thereof as specified in Appendix 9-3 (Scope of Works and Supply by the Owner).

- 25.1.3 When the Contractor considers that the Plant or any part thereof is ready for the carrying out of the applicable Performance Test, the Contractor shall so notify the Owner in writing.

25.2 Performance Test

- 25.2.1 Immediately after giving the notice specified in GC 25.1.3, the Performance Test (and repeats thereof) shall be conducted by the Contractor during Commissioning of the Plant or the relevant part thereof to ascertain whether the Plant or that part satisfies the Plant Performance Guarantees in accordance with GC 28 (Plant Performance Guarantees).

- 25.2.2 If, for reasons not attributable to the Contractor, the Performance Test of the Plant or that part thereof cannot be successfully completed within six (6) months from the date of Mechanical Completion or within any other period agreed upon by the Owner and the Contractor, the Contractor shall be deemed to have fulfilled its obligations with respect to the Plant Performance Guarantees and GCs 28.2 and 28.3 shall not apply.

25.3 Acceptance

- 25.3.1 The Owner shall be deemed to have accepted the Plant or any part thereof when:
- (a) the Contractor has fulfilled its obligations with respect to the Plant Performance Guarantees for the Plant or that part in accordance with the provisions of GC 28 (Plant Performance

**GC 33. Loss or Damage to Property/Accident or Injury to Workmen/
Indemnification**

- A2-48 33.1 The Contractor shall indemnify and hold harmless the Owner, its affiliates or subsidiaries and its contractors and the employees, officers and agents of any of them (hereinafter collectively referred to as the "Owner Indemnatee Parties" or individually as an "Owner Indemnatee Party") from and against any and all suits, actions or administrative proceedings, claims, demands, losses, damages and costs and expenses of whatsoever nature, including attorney's fees and expenses, in respect of:
- (a) the death or injury of any employee, officer or agent of the Contractor, its affiliates, subsidiaries or sub-contractors (all of the aforesaid being collectively referred to as the "Contractor Indemnatee Parties" or individually as a "Contractor Indemnatee Party") arising in connection with the Works from any reason whatsoever (other than a willful act or any willful negligence of any Owner Indemnatee Party); or
 - (b) loss of or damage to any property in the ownership or possession of any Contractor Indemnatee Party (other than the Plant) arising in connection with the Works from any reason whatsoever (other than a willful act or any willful negligence of any Owner Indemnatee Party or as specified in GC 32.2 or GC 38.3); or
 - (c) loss of or damage to any property in the ownership or possession of any Owner Indemnatee Party arising in connection with the execution of the Works (provided however that the Contractor's liability under this GC 33.1 (c) shall be limited to the amount recoverable from insurances procured under GC 34 (Insurance)); or
 - (d) the death or injury of or loss of or damage to property of any third party arising in connection with the execution of the Works and by reason of the negligence of the Contractor Indemnatee Party.

For the purpose of this GC 33, "third party" shall mean any party which is not an Owner Indemnatee Party or a Contractor Indemnatee Party.

- 33.2 If any proceedings are brought or any claim is made against any Owner Indemnatee Party which might subject the Contractor to liability under GC 33.1, the Owner shall promptly give the Contractor a notice thereof and the Contractor may at its own expense and in the Owner Indemnatee Party's name conduct such proceedings or claim and any negotiations for the settlement thereof. If the Contractor fails to notify the Owner within twenty-eight (28) days after receipt of such notice that it intends to conduct any such proceedings or claim, then the Owner Indemnatee Party shall be free to conduct the same on its own behalf. Unless the Contractor has so failed to notify the Owner Indemnatee Party within the twenty-eight

(28) day period, the Owner Indemnatee Party shall make no admission which may be prejudicial to the defense of any such proceedings or claim.

The Owner and the Owner Indemnatee Party being indemnified shall, at the Contractor's request, afford all available assistance to the Contractor in conducting such proceedings or claim, and shall be reimbursed by the Contractor for all reasonable expenses incurred in so doing.

- 33.3 The Owner shall indemnify and hold harmless the Contractor Indemnatee Parties from and against any and all suits, actions or administrative proceedings, claims, demands, losses, damages and costs and expenses of whatsoever nature, including attorney's fees and expenses, in respect of:
- (a) the death or injury of any employee, officer or agent of any Owner Indemnatee Party arising in connection with the Works or the Contract from any reason whatsoever (other than a willful act or any willful negligence of any Contractor Indemnatee Party); or
 - (b) loss of or damage to any property in the ownership or possession of any Owner Indemnatee Party arising in connection with the Works or the Contract from any reason whatsoever (other than a willful act or any willful negligence of any Contractor Indemnatee Party and except to the extent that the Contractor shall be liable for the same under GCs 32 or 33.1); or
 - (c) the death or injury of or loss of or damage to property of any third party arising in connection with the Works and by reason of the negligence of any Owner Indemnatee Party.

The provisions of GC 33.2 shall apply mutatis mutandis in any case where proceedings are brought or a claim is made against a Contractor Indemnatee Party which might subject the Owner to liability under this GC 33.3.

- 33.4 Any Contractor Indemnatee Party or Owner Indemnatee Party entitled to the benefit of an indemnity under this GC 33 shall take all reasonable measures to mitigate any loss or damage which has occurred. If the party so entitled fails to take such measures, the other party's liabilities shall be reduced to the same extent as if the party so entitled had taken such measures.

GC 34. Insurance

- 34.1 Unless otherwise specified in Appendix 6 (Insurance Requirements), the Contractor shall at its expense take out and maintain in effect, or cause to be taken out and maintained in effect, during the performance of the Contract, the insurances set forth below in the sums and with the deductibles and other conditions specified in Part I of the said Appendix. The identity of the insurers and the form of the policies shall be subject to the approval of the Owner, such approval not to be unreasonably withheld.

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- (a) Marine Cargo Insurance
covering physical loss or damage occurring, whilst in transit from the supplier's or manufacturer's works or stores until arrival at the Site, to the Materials (including spare parts therefor) and to the Construction Equipment and Facilities to be provided by the Contractor or its Sub-contractors.
- (b) Erection All Risks Insurance
covering physical loss or damage to the Works at the Site, occurring prior to Acceptance of the Plant, with continuing coverage for the Contractor's liability in respect of any loss or damage occurring to any part of the Plant during the relevant Defect Liability Period.
- (c) Third Party Liability Insurance
covering liability in respect of bodily injury or death suffered by third parties (including the Owner's personnel) and physical loss of or damage to property (including the Owner's existing property and any parts of the Plant which have been accepted by the Owner) occurring in connection with the execution of the Works.
- (d) Automobile Liability Insurance
covering use of all vehicles used by the Contractor or its Sub-contractors (whether or not owned by them) in connection with the execution of the Works.
- (e) Workmen's Compensation
in accordance with the statutory requirements applicable in any country where the Works or any part thereof is executed.
- (f) Employer's Liability
in accordance with the statutory requirements applicable in any country where the Works or any part thereof is executed.
- (g) Such other insurances as may be specifically agreed upon by the parties hereto.
- 34.2 The Owner shall be named as co-insured under all insurance policies taken out by the Contractor pursuant to GC 34.1 except for the Workmen's Compensation and Employer's Liability Insurances and the Sub-contractors shall be named as co-insureds under all insurance policies taken out by the Contractor pursuant to GC 34.1 except for the Marine Cargo, Workmen's Compensation and Employer's Liability Insurances, and all insurer's rights of subrogation against such co-insureds for losses or claims arising out of the performance of the Contract shall be waived under such policies.
- 34.3 The Contractor shall, prior to commencing any relevant part of the Works, deliver to the Owner certificates of insurance (or copies of the insurance policies) as evidence that the required policies are in full force and effect. The policies shall provide that not less than twenty-one (21) days' notice shall be given to the Owner by all insurers prior to any cancellation or material modification of the policies.

- 34.4 The Contractor shall ensure that, where applicable, its Sub-contractor(s) shall take out and maintain in effect adequate insurance policies for their personnel and vehicles and for work executed by them under the Contract unless such Sub-contractors are covered by the policies taken out by the Contractor.
- 34.5 The Owner shall at its expense take out and maintain in effect during the performance of the Contract those insurances specified in Part II of Appendix 6 (Insurance Requirements) in the sums and with the deductibles and other conditions specified in Part II of the said Appendix. The identity of the insurers and the form of the policies shall be subject to the approval of the Contractor, such approval not to be unreasonably withheld. The Contractor and the Sub-contractors shall be named as co-insureds under all such policies. All insurers' rights of subrogation against such co-insureds for losses or claims arising out of the performance of the Contract shall be waived under such policies. The Owner shall deliver to the Contractor satisfactory evidence that the required insurances are in full force and effect. The policies shall provide that not less than twenty-one (21) days' notice shall be given to the Contractor by all insurers prior to any cancellation or material modification of the policies.
- 34.6 If the Contractor fails to take out and/or maintain in effect the insurances referred to in GC 34.1, the Owner may take out and maintain in effect any such insurances and may from time to time deduct from any amount due to the Contractor under the Contract any premium which the Owner shall have paid to the insurer or otherwise recover such amount as a debt due from the Contractor.
- If the Owner fails to take out and/or maintain in effect the insurances referred to in GC 34.5, the Contractor may take out and maintain in effect any such insurances and may from time to time deduct from any amount due to the Owner under the Contract any premium which the Contractor shall have paid to the insurer or otherwise recover such amount as a debt due from the Owner.
- 34.7 Unless otherwise provided in the Contract, the Contractor shall prepare and conduct all and any claims made under the policies effected pursuant to GC 34.1 and all monies payable by any insurers under those policies shall be paid to the Contractor. The Owner shall give to the Contractor all such reasonable assistance as may be required by the Contractor. With respect to insurance claims in which the Owner's interest is involved, the Contractor shall not give any release or make any compromise with the insurer without the prior written consent of the Owner. With respect to insurance claims in which the Contractor's interest is involved, the Owner shall not give any release or make any compromise with the insurer without the prior written consent of the Contractor.

GC 35. Unforeseen Conditions

- A2-50 35.1 If, during the execution of the Works, the Contractor shall encounter on the Site any physical conditions (other than climatic conditions) or artificial obstructions that could not have been reasonably foreseen at the date of the Agreement by an experienced contractor on the basis of reasonable examination of the data relating to the Works (including any data as to boring tests) provided by the Owner and of information the Contractor could have obtained from a visual inspection of the Site (if access thereto was available) or other data readily available to it relating to the Works, and if the Contractor determines that it will in consequence of such conditions or obstructions incur additional cost and expense or require additional time to perform its obligations under the Contract which would not have been required if such physical conditions or artificial obstructions had not been encountered, the Contractor shall promptly, and before performing additional work or using additional Materials or Construction Equipment and Facilities, notify the Owner in writing of:
- (a) the physical conditions or artificial obstructions on the Site that could not have been reasonably foreseen; and
 - (b) the additional work, Materials, and/or Construction Equipment and Facilities required including the steps which the Contractor will or proposes to take to overcome such conditions or obstructions; and
 - (c) the extent of the anticipated delay; and
 - (d) the additional cost and expense which the Contractor is likely to incur.
- 35.2 Any additional cost and expense incurred by the Contractor to overcome such physical conditions or artificial obstructions referred to in GC 35.1 shall be paid by the Owner to the Contractor as an addition to the Contract Price.
- 35.3 If the Contractor shall be delayed or impeded in the performance of the Contract due to any such physical conditions or artificial obstructions referred to in GC 35.1, the Time for Completion shall be extended in accordance with GC 40 (Extension of Time for Completion).

GC 36. Change in Laws and Regulations

- A2-51 If, after the date of the Agreement, in any country where the Plant or any part thereof is to be manufactured or in the country where the Site is located, any law, regulation, ordinance, order or by-law having the force of law is enacted, promulgated, abrogated or changed (which shall be deemed to include any change in interpretation or application by the competent authorities) which subsequently affects the costs and expenses of the Contractor and/or the Time for Completion, the Contract Price shall be correspondingly increased or decreased and/or the Time for Completion shall be adjusted in

accordance with GC 40 (Extension of Time for Completion) to the extent that the Contractor has thereby been affected in the performance of any of its obligations under the Contract.

GC 37. Force Majeure

- 37.1 "Force Majeure" shall mean any event beyond the reasonable control of the Owner or the Contractor, as the case may be, and which is unavoidable notwithstanding the reasonable care of the party affected, and shall include, without limitation, the following: A2-52
- (a) war, hostilities or warlike operations (whether a state of war be declared or not), invasion, act of foreign enemy, civil war; or
 - (b) rebellion, revolution, insurrection, mutiny, usurpation of civil or military government, conspiracy, riot, civil commotion, terrorist acts; or
 - (c) confiscation, nationalization, mobilization, commandeering or requisition by or under the order of any government or de jure or de facto authority or ruler or any other act or failure to act of any local, state or national government authority; or
 - (d) strike, sabotage, lock-out, embargo, import restriction, port congestion, lack of usual means of public transportation and communication, industrial dispute, shipwreck, shortage or restriction of power supply, epidemics, quarantine, plague; or
 - (e) earthquake, landslide, volcanic activity, fire, flood or inundation, tidal wave, typhoon or cyclone, hurricane, storm, lightning, or other inclement weather condition, nuclear and pressure waves, or other natural or physical disaster; or
 - (f) shortage of labor, materials or utilities where caused by circumstances that are themselves Force Majeure.
- 37.2 If either party is prevented, hindered or delayed from or in performing any of its obligations under the Contract by an event of Force Majeure, then it shall notify the other in writing of the occurrence of such event and the circumstances thereof within seven (7) days after it becomes aware of the occurrence of such event.
- 37.3 The party who has given such notice shall be excused from the performance or punctual performance of its obligations under the Contract to the extent that such party's performance is prevented, hindered or delayed. The Time for Completion shall be extended in accordance with GC 40 (Extension of Time for Completion).
- 37.4 The party or parties affected by the event of Force Majeure shall use reasonable endeavors to mitigate the effect thereof upon its or their performance of the Contract and to fulfill its or their obligations under the Contract, but without prejudice to either party's right to terminate the Contract under GC 37.6 and GC 38.5.
- 37.5 No delay or non-performance by either party hereto caused by the occurrence of any event of Force Majeure shall:
- (a) constitute a default or breach of the Contract;

- (b) (subject to GCs 32.2, 38.3 and 38.4) give rise to any claim for damages or additional cost or expense occasioned thereby, or
- (c) prevent the operation of GC 25.2.2.
- 37.6 If the performance of the Works is substantially prevented, hindered or delayed for an aggregate period of more than one hundred and twenty (120) days on account of one or more events of Force Majeure during the currency of the Contract, either party may terminate the Contract by giving a notice to the other, but without prejudice to either party's right to terminate the Contract under GC 38.5.
- 37.7 In the event of termination pursuant to GC 37.6, the rights and obligations of the Owner and the Contractor shall be as specified in GCs 42.1.2 and 42.1.3, except that the Contractor shall have no entitlement to profit under paragraph (e) of the said GC 42.1.3 in respect of any unexecuted Works as at the date of termination.
- 37.8 Notwithstanding GC 37.5, no occurrence of Force Majeure shall affect in any way any obligation of the Owner to make payments to the Contractor hereunder.
- GC 38. War Risks**
- A2-53 38.1 "War Risks" shall mean any event specified in paragraphs (a) and (b) of GC 37.1 and any explosion or impact of any mine, bomb, shell, grenade or other projectile, missile, munition or explosive of war, occurring or existing in or near the country where the Site is located.
- 38.2 Notwithstanding anything contained in the Contract, the Contractor shall have no liability whatsoever for or with respect to:
- the destruction of or damage to the Works or the Materials or any part thereof; or
 - the destruction of or damage to the property of the Owner or any third party; or
 - injury or loss of life;
- if such destruction, damage, injury or loss of life is caused by any War Risks, and the Owner shall indemnify and hold the Contractor harmless from and against any and all claims, liabilities, actions, lawsuits, damages, costs, charges or expenses arising in consequence of or in connection with the same.
- 38.3 If the Works or any Materials or Construction Equipment and Facilities or any other property of the Contractor used or intended to be used for the purposes of the Works shall sustain destruction or damage by reason of any War Risks, the Owner shall pay the Contractor for:
- any part of the Works and any Materials so destroyed or damaged (to the extent not already paid for by the Owner); and
 - making good any Construction Equipment and Facilities, or other property of the Contractor so destroyed or damaged;

- and, so far as may be required by the Owner, and as may be necessary for the completion of the Works,
- (c) making good any such destruction or damage to the Works or the Materials or any part thereof.
- If the Owner does not require the Contractor to make good any such destruction or damage to the Works, the Owner shall either request a Change in accordance with GC 39 (Change in the Works) excluding the performance of the relevant part of the Works or, where the loss, destruction or damage affects a substantial part of the Works, terminate the Contract pursuant to GC 42.1 (Termination for Owner's Convenience).
- 38.4 Notwithstanding anything contained in the Contract, the Owner shall pay the Contractor for any increased costs of or incidental to the execution of the Works which are in any way attributable to, consequent on, the result of or in any way connected with any War Risks, provided that the Contractor shall as soon as practicable notify the Owner in writing of any such increased cost.
- 38.5 If during the performance of the Contract, any War Risk shall occur which financially or otherwise materially affects the execution of the Works by the Contractor, the Contractor shall use its reasonable endeavors to execute the Works with due and proper consideration given to the safety of its and its Sub-contractors' personnel engaged in the Works, provided, however, that if the execution of the Works becomes impossible or is substantially prevented for an aggregate period of more than sixty (60) days on account of any War Risks, either party may terminate the Contract by giving a notice to the other.
- 38.6 In the event of termination pursuant to GC 38.3 or GC 38.5, the rights and obligations of the Owner and the Contractor shall be specified in GCs 42.1.2 and 42.1.3, except that the Contractor shall have no entitlement to profit under paragraph (e) of the said GC 42.1.3 in respect of any unexecuted Works as at the date of termination.