IN THE APPELLATE DIVISION OF
THE HIGH COURT OF THE REPUBLIC OF SINGAPORE

[2024] SGHC(A) 1

Appellate Division / Civil Appeal No 100 of 2022

Between

ICOP Construction (SG) Pte Ltd

… *Appellant*

And

Tiong Seng Civil Engineering (Pte) Ltd

… *Respondent*

In the matter of Suit No 1086 of 2019

Between

ICOP Construction (SG) Pte Ltd

… *Plaintiff*

And

Tiong Seng Civil Engineering (Pte) Ltd

… *Defendant*

JUDGMENT

[Building and Construction Law — Contractors' duties]
[Building and Construction Law — Damages]
[Building and Construction Law — Employers' duties]
[Building and Construction Law — Termination]
[Credit and Security — Performance bond]

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v
Tiong Seng Civil Engineering (Pte) Ltd

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Woo Bih Li JAD, Kannan Ramesh JAD and Quentin Loh SJ
26 May 2023

2 January 2024 Judgment reserved.

Quentin Loh SJ (delivering the judgment of the court):

Introduction

1 This appeal, AD/CA 100/2022 ("AD 100"), arises from a construction dispute between ICOP Construction (SG) Pte Ltd ("ICOP"), a subcontractor for microtunneling works, and the main contractor, Tiong Seng Civil Engineering (Private) Limited ("TSCE").

2 The trial below in HC/S 1086/2019 (the "Suit") was bifurcated. This appeal arises from the decision of the judge below (the "Judge") on the first tranche, dealing with liability both of ICOP's claims as well as TSCE's counterclaims. The Judge ordered TSCE to pay ICOP $1,333,298.52, and ICOP to pay TSCE $402,790.46 for delay damages. The Judge also found that ICOP had wrongfully terminated the subcontract. TSCE's loss and damage for

wrongful termination of the subcontract will proceed to the second tranche of the trial where damages will be assessed.

Background facts

3 The appellant, ICOP, is a company incorporated in Singapore. It is in the business of constructing, *inter alia*, water, gas, and sewage pipelines. The respondent, TSCE, is also incorporated in Singapore, and its business is in the provision of infrastructure engineering design and consultancy services, as well as the construction of civil engineering projects. TSCE belongs to a group of companies which includes Tiong Seng Contractors Pte Ltd ("TSC").

4 In or around June 2016, TSC was engaged by the Public Utilities Board (the "PUB") to construct a potable water pipeline in a project titled "Proposed 1600mm Diameter Pipeline from AYE/Henderson Road to River Valley Road" (the "Project"). The Project was part of a larger project for the construction of potable water pipelines from Jalan Kampong Chantek to Marina South and River Valley Road. TSC subcontracted the Project wholly to TSCE.

5 Around May 2017, TSCE subcontracted the microtunnelling works to ICOP (the "Subcontract"). This was done through the execution of a letter of award ("LOA"), as amended by a supplemental letter ("Supplemental Letter"), both of which were backdated to 15 April 2017. The reason for the backdating was that ICOP had commenced work before the execution of the LOA and Supplemental Letter. The parties were to subsequently agree upon a set of General Conditions of the Subcontract but they were unable to reach an agreement; consequently, the Subcontract did not have any General Conditions.

6 Under the Subcontract, ICOP's scope of work was to install: "124m of DN1200mm Reinforced Concrete Composite Pipe with built in Mild Steel

Collar" and "2229m of DN1600mm" of the same type of pipe but of a larger diameter (the "Subcontract Works"). "DN" refers to the internal diameter of the pipe. The installation method was microtunnelling.

7 The process of microtunnelling has been explained by the Judge in detail at [5] to [7] of his decision in *ICOP Construction (SG) Pte Ltd v Tiong Seng Civil Engineering Pte Ltd* [2022] SGHC 257 (the "Judgment"). For the purposes of this judgment, ICOP's microtunnelling works under the Subcontract involved the following. Essentially, vertical shafts, called working shafts, were constructed at intervals along the proposed route of the pipeline (this work was carried out by TSCE). These shafts were sunk from ground level to the proposed depth of the tunnel. Tunnel boring would then be carried out by a microtunnel boring machine ("MTBM") at the correct depth from the bottom of the shaft. This comprised a circular cutter head, or wheel, affixed to a trailing steel cylindrical section (often called a "trailing steel can") containing the associated machinery; the cutter head rotated as it bored into the soil creating a tunnel for the proposed pipeline. The MTBM was pneumatically pushed forward and into the soil by a hydraulic jacking machine, also situated within the shaft. As the cutter head cut into the soil, rocks and soil were ground down in a chamber immediately behind the cutter head, mixed with a drilling fluid to form a slurry and transferred to the slurry circuit which removed the slurry of rocks and soil away from the cutter head. This slurry was then transported up to a "separator plant" (or a slurry treatment plant, "STP") on the surface where the rock and soil were separated from the drilling fluid. The rock and soil were disposed off-site, and the drilling fluid recycled back to the MTBM. As the MTBM bored its way through the soil, it would stop at intervals for a section of the prefabricated pipe to be placed securely and accurately, initially, behind the cutter head's trailing steel cylinder, and subsequently, into the end of the preceding fabricated

pipe. These reinforced concrete composite pipes with built in steel collars were exactingly manufactured, so that one end of the pipe securely fitted into the other end of the preceding pipe, thereby forming a hydraulic joint. When a section of the pipe had been sufficiently jacked in, the construction process entered into a "by-pass" mode. The pneumatic jacking was stopped as the next section of the pipe was placed on guide rails ready for jacking in and the various piping lines, which included the slurry removal pipe and cables, were lengthened to cater for the extended length as the next section of the pipe was jacked into the tunnel. The pipe was thus constructed simultaneously as the cutter head progressed through the ground and it was also the means by which the jacking force is transmitted along the sections of the "laid" pipes to the cutter head. The cutter head would eventually break into the next shaft, called the receiving shaft, thereby completing that section, called a "drive", of the pipe. To complete the picture, there was a control unit on the surface for operating the jacking machinery set within the jacking frame at the bottom of the shaft as well as various pieces of machinery connected to the cutterhead and the trailing steel cylinder. Other important parts of this microtunnelling process included the STP, the generators providing the electrical supply, high-capacity pumps and a crane to lower and raise equipment, machinery and sections of the pipes into and out of the shafts. There were also areas set aside for delivery and storage of pipes, a muck pit and access for lorries to remove the rock and soil.

8 The Subcontract envisaged that ICOP would install the pipes in four sequential "drives". Each drive represented the MTBM moving from a launching or jacking shaft to a receiving shaft. The first drive ("Drive 1") was from Shaft P5-1 (*ie*, the launching shaft for Drive 1) to Shaft P5-7 (*ie*, the receiving shaft for Drive 1). Drive 1 was for the installation of the shorter and smaller DN1200mm pipeline (the "DN1200mm Pipeline"). The other three

drives were for the installation of the longer and larger DN1600mm pipeline (the "DN1600mm Pipeline") as follows:

(a) Drive 2 was from Shaft P5-2 (*ie*, the launching shaft for Drive 2) to Shaft P5-1 (*ie*, the receiving shaft for Drive 2).

(b) Drive 3 was from Shaft P5-2 to Shaft P5-3.

(c) Drive 4 was from Shaft P5-4 to Shaft P5-3.

9 According to Appendix D of the Subcontract (*ie*, the Schedule of Work), the timelines for the four sequential drives were as follows:

	Commencement date	**Completion date**	**Duration (days)**
Drive 1	17 April 2017	2 June 2017	46
Drive 2	15 June 2017	24 October 2017	131
Drive 3	25 October 2017	8 February 2018	106
Drive 4	9 February 2018	7 August 2018	179

10 Notably, cll 2.1 and 2.2 of the LOA (as amended by the Supplemental Letter) provided that the scheduled commencement dates and completion dates in Appendix D are "tentative" and that the actual commencement date and completion date for each drive were subject to the parties' mutual agreement, with TSCE issuing a Notice to Proceed to ICOP no less than 45 days prior to the actual commencement date.

11 As it transpired, the actual timeline of the Subcontract Works deviated rather substantially from the timelines provided in Appendix D. It suffices to

note at this juncture that ICOP only commenced pipe jacking for Drive 1 on 3 June 2017, with the Notice to Proceed for Drive 2 only being issued on 29 December 2017. During Drive 2, the parties were already facing tensions and disagreements, so much so that after ICOP completed Drive 2 in early 2019, ICOP considered itself justified in terminating the Subcontract and did so on 13 March 2019.

Issues on appeal

12 There are 13 issues that arise for our consideration in this appeal:

(a) **Issue 1:** Whether the Judge erred in finding ICOP liable to pay damages of $83,790 to TSCE for causing 49 days of critical delay on the basis that ICOP did not have a valid legal basis to request the reconstruction of a headwall (Judgment at [35]–[36] and [90]–[94]).

(b) **Issue 2:** Whether the Judge erred in finding that ICOP had failed to establish a duty and/or breach on TSCE's part in relation to the alleged defects in Shaft P5-1 (Judgment at [37]–[48]).

(c) **Issue 3:** Whether the Judge erred in finding that TSCE did not cause any critical delay between 24 February 2018 and 6 April 2018 (Judgment at [68]–[76]).

(d) **Issue 4:** Whether the Judge erred in finding that ICOP is not entitled to claim a daily MTBM rental rate of $9,120 for each day of critical delay caused by TSCE, prior to the expiry of an 18-month minimum rental period for the MTBM undertaken by ICOP to a third party (Judgment at [87]–[88]).

(e) **Issue 5:** Whether the Judge erred in finding that TSCE is entitled to claim liquidated damages for ICOP's delays as opposed to general damages (Judgment at [94]).

(f) **Issue 6:** Whether the Judge erred in finding ICOP liable to pay damages of $54,244.27 to TSCE for causing 31.137 days of critical delay for failing to comply with noise restrictions so that pipe jacking works could be carried out at night (Judgment at [95]–[104]).

(g) **Issue 7:** Whether the Judge erred in finding that TSCE did not cause any delay by: (i) failing to supply a sufficient number of pipes; (ii) supplying poor-quality pipes; (iii) failing to timeously carry out waste disposal; and (iv) insisting on an unplanned cutterhead inspection (Judgment at [105]–[119]).

(h) **Issue 8:** Whether the Judge erred in finding ICOP liable to pay damages of $39,090.60 to TSCE for causing 22.86 days of critical delay on the basis that its pipe jacking works were slow (Judgment at [120]–[126]).

(i) **Issue 9:** Whether the Judge erred in finding ICOP liable to pay damages of $35,910 to TSCE for causing 21 days of critical delay in relation to its slow demobilisation after Drive 2 (Judgment at [127]–[130]).

(j) **Issue 10:** Whether the Judge erred in not considering what a reasonable time to complete Drive 2 was.

(k) **Issue 11:** Whether the Judge erred in finding that ICOP did not lawfully terminate the Subcontract on 13 March 2019 (Judgment at [139]–[143]).

(l) **Issue 12:** Whether TSCE's call on the performance bond was justified and whether ICOP is entitled to the return of the full amount of $570,000 paid under the performance bond (Judgment at [151]–[154]).

(m) **Issue 13:** Whether the stay on payments ordered by the Judge ought to be lifted (Judgment at [162]–[167]).

13 Given that the multitude of claims and issues raised by both parties involve different and discrete factual matrices, we set out the facts pertinent to each individual issue on appeal separately under our decision on the individual issues below.

Issue 1: Headwall defects in Shaft P5-2

14 The first issue on appeal pertains to TSCE's construction of the headwall in Shaft P5-2, which was the launching shaft for Drive 2 (the "headwall issue"). At para 2(a) of its Notice of Appeal, ICOP appeals against the Judge's finding that "[ICOP] is to pay [TSCE] S$83,790 for causing 49 days of critical delay on the basis that ICOP did not have a valid legal basis to request the reconstruction of the headwall, and thus, it is ICOP which is liable for 49 days of delay caused by its request (see [35] – [36] and [90] – [94] of the Judgment)".

Background facts to Issue 1

Headwall, entrance ring seal, and soft eye

15 By way of context, the hydraulic jack system's frame is installed between a headwall on one side of the launching shaft and a thrust wall on the other side of the shaft. The purpose of the thrust wall is to provide a surface against which the hydraulic jack can generate jacking force to push the MTBM and then the pipe sections forward. The purpose of the headwall is to provide a

flat surface and guidance that allows the MTBM to break through into the ground outside the shaft in the intended alignment, thereby ensuring that the pipe jacking operation proceeds in a particular drive direction.

16 The headwall also functions to provide a watertight seal between the structure of the jacking shaft and the MTBM. This is achieved by installing a rubber seal (also known as the entrance ring seal) on the headwall to prevent water from outside the jacking shaft from seeping through and entering the shaft.

17 To aid the initial coring of the MTBM through the headwall before penetrating the soil outside the shaft, "soft eyes" are cast into the headwall in the shaft. Soft eyes refer to parts of the shaft walls that are reinforced with glass fibre reinforced polymers instead of the usual steel reinforcement bars; this enables the MTBM to more easily cut and break through the concrete to begin tunnelling through the soil. This ensures minimal chances of damage to the MTBM cutter head. On the other side of the headwall and working shaft's *in situ* caisson wall there is a grout "block" created in the soil; this is called the breakout zone through which the MTBM passes before reaching the soil. This enables the MTBM to align the cutter head more accurately as it starts the tunnelling process.

Chronology of events

18 We now turn to the events leading to the dispute. On 27 February 2018, TSCE sent an e-mail to One Smart Engineering Pte Ltd ("One Smart"), the Temporary Works Consultant for the Project, attaching TSCE's draft design drawing of the headwall and thrust wall and seeking One Smart's review and endorsement. Mr Ng Chew Chiat David ("Mr Ng"), the assistant to the Qualified

Person for Design ("QP(D)") made some amendments to and notes on the drawing and thereafter endorsed the same. On 12 March 2018, One Smart returned the drawing to TSCE with Mr Ng's endorsement (the "Approved Drawing").

19 Thereafter, TSCE commenced construction of the headwall. On 22 March 2018, the Resident Technical Officer (an employee of One Smart), Dy Don Camcam ("RTO Dy Don"), conducted an inspection of the in-progress construction of the headwall and noted that it passed the inspection. On 24 March 2018, RTO Dy Don conducted another inspection of the headwall and recorded that it also passed the inspection.

20 On 17 May 2018, Mr Ng visited the worksite and observed that the headwall and the thrust wall for Shaft P5-2 had been installed.

21 On 26 June 2018, ICOP commenced MTBM launching work. Prior to drilling, ICOP's MTBM operator performed the sealing test of the headwall and entrance seal. A sealing test is done by moving the MTBM into the headwall (without breaking into the soil) and pumping water at a certain pressure to test if there are any leaks in the headwall or entrance seal. At 1.5 bar water pressure, the entrance headwall started to dislocate from the *in situ* caisson wall and water started to spray out between the two concrete structures. Thereafter, ICOP raised concerns about the leaks to TSCE and TSCE commenced rectification works by injecting foam from the outer joints between the caisson wall and the entrance headwall.

22 On 3 July 2018, following remedial works by TSCE, a second sealing test was conducted, but it also failed. The headwall started to fail from 0.8 bar to 1.8 bar water pressure. From 4 July 2018 to 10 July 2018, TSCE commenced

further rectification works, including the casting of further concrete on the outer joints, grouting works, and pumping of foam in the entrance headwall.

23 On 11 July 2018, a third sealing test was conducted, but it also failed. The headwall started to fail from 0.8 bar to 1.5 bar water pressure. ICOP formally wrote to TSCE recommending TSCE to construct a new headwall to avoid further damage to the wall and to ICOP's equipment. TSCE attempted further remedial works but to no avail. Further sealing tests were conducted on 12, 16, 17 and 18 July 2018, but they all failed.

24 On 18 July 2018, TSCE called for a meeting with One Smart. Mr Ng met with TSCE's Mr Peter Sun ("Mr Sun") at the site office. Mr Ng advised Mr Sun that pipe jacking works could continue because Mr Ng was confident that a pressure of 1.0 bar was sufficient for breaking in the grout block at the breakout zone, before the MTBM reached the soil layer. If there was any leakage, Mr Ng was of the view that polyurethane grouting could be carried out immediately from outside the pipe to stop the leakage.

25 On 27 July 2018, a meeting took place between representatives from TSCE, ICOP, BTJV (the Black & Veatch and TriTech Joint Venture, which was the PUB's consultant and representative) and One Smart. ICOP insisted that TSCE rebuild the headwall to resolve the leakage issues. After discussion, TSCE eventually agreed to build a new headwall to comply with ICOP's operational requirements.

26 Subsequently, on 30 July 2018, ICOP removed its jacking equipment and demobilised from Shaft P5-2. Shaft P5-2 was handed back to TSCE on 1 August 2018 for TSCE to rebuild the headwall. TSCE completed the

reconstruction of the headwall on 14 August 2018 and returned Shaft P5-2 to ICOP.

27 According to ICOP, a further sealing test of the rebuilt headwall was conducted on 23 August 2018 successfully. The rebuilt headwall and entrance seal appeared to be watertight.

The decision below

28 In the proceedings below, ICOP argued that TSCE failed to construct the headwall to sustain 1.75 bar of pressure according to the specification prescribed by the QP(D), and therefore, claimed against TSCE for: (a) $94,821.30 comprising loss and damage it incurred whilst the headwall was being rebuilt by TSCE; and (b) damages suffered because of delays caused by TSCE. TSCE argued that there were no specifications by the QP(D) that the headwall must withstand 1.75 bar of pressure. It argued that even though it did reconstruct the headwall, ICOP had no valid grounds to request the reconstruction of the headwall and ICOP should be liable for the delay caused by its request.

29 The Judge found that ICOP did not have a valid legal basis to request the reconstruction of the headwall and ICOP was liable for the delay caused by its request (Judgment at [36]). The Judge relied on the testimony of Mr Ng, the QP(D)'s assistant, who testified that there were no specifications that the headwall must withstand 1.75 bar of pressure and that TSCE had constructed the headwall in accordance with the QP(D)'s specifications (Judgment at [35] and [36]). The Judge assessed the period of delay in respect of the headwall issue to be 49 days of actual critical delay and awarded TSCE liquidated damages of $83,790 in respect of the headwall issue (Judgment at [94]).

ICOP's arguments on appeal

30 On appeal, ICOP argues that the Judge erred in accepting Mr Ng's testimony. ICOP argues that the Judge's finding was against the weight of the evidence because:

(a) the Judge failed to consider the Geological Longitudinal Section Sheets ("GLS Sheets") produced by One Smart to the authorities, which indicated that the maximum face pressure at chainage 690 to 731 (*ie*, at the location of Shaft P5-2) is 1.75 bar;

(b) the QP(D) himself submitted a document titled "Design Checks on the Proposed 1600mm Diameter Water Pipe Between Shaft P5-1 & Shaft P5-2" dated 1 November 2017 (the "Calculation Report") to the Building and Construction Authority ("BCA"), which stated that maintaining the correct face support pressure was critical to the safe operation of the MTBM;

(c) TSCE had agreed to rebuild the headwall "in consideration of the quality and safety of the works"; and

(d) the initial headwall was designed (but not constructed) to withstand 2.5 bar of pressure and there was no design difference between the initial headwall and the reconstructed headwall.

Our decision

31 It is important to note at the outset that ICOP's pleaded case below was that the *QP(D)'s specifications* called for the headwall being able to sustain a maximum face pressure of 1.75 bar (before accounting for the safety factor) between the cutter face of the MTBM and the headwall. For the reasons set out

below, we are of the view that the Judge was correct in finding that ICOP has no valid legal basis to request the reconstruction of the headwall, *ie*, the QP(D)'s specifications did not require the headwall to sustain a maximum face pressure of 1.75 bar. We consequently dismiss ICOP's appeal in relation to the headwall issue.

32 TSCE's obligations in relation to the construction of the headwall under the Subcontract include the following:

(a) Under S/No 1.15 of the Matrix of Responsibilities (Appendix C to the Subcontract, "MOR"), the responsibility falls on TSCE to construct all "shafts with flushed headwall/backwall and reinforced concrete base slab *according to the project designs and microtunnelling requirement*" [emphasis added].

(b) Section 3 of the Method Statement (Appendix E of the Subcontract, "Method Statement") provides that TSCE must construct:

> …
>
> A steel reinforced concrete entrance wall in the starting shaft [which refers to the headwall] … to bear the external ground pressure on the face and serve as a break-in wall for the MTBM and pipes during microtunnelling works. The entrance wall affixed with an entrance seal and ring has to prevent the leakage of slurry or lubrication during microtunnelling works. The entrance wall shall be evenly flat to allow a watertight fixation of the entrance seal.
>
> …

(c) In the reference document titled "P5-GS11 — Pipe Jacking" , which was referred to at paragraph 2(*b*) of the Supplemental Letter, section 11.2 provides that:

> **11.2 Jacking/receiving shafts**

> …
>
> (8) All shafts, thrust walls and jacking frames *shall be designed and endorsed by the Contractor's PE [ie, One Smart]* and constructed to the acceptance of the [Superintending Officer] …
>
> …
>
> (11) Each shaft should incorporate a soft eye (weak section of concrete) and a watertight seal for the excavation machine entry to and exit from the shaft …
>
> [emphasis added in italics]

33 As seen from the above, TSCE's contractual obligation under the Subcontract was to construct a headwall with an entrance seal and ring according to the specifications of the QP(D) from One Smart. This is not disputed by the parties. Therefore, the key question is whether the QP(D) required the headwall to withstand 1.75 bar of pressure. In our judgment, the Judge was correct to find that there was no such requirement imposed by the QP(D).

34 First, although the QP(D) did not give evidence, Mr Ng, who was the QP(D)'s assistant and who assisted the QP(D) in preparing and reviewing the design specifications for the headwall, testified that there was no requirement that the headwall must maintain 1.75 bar of pressure. Specifically, Mr Ng stated in his affidavit of evidence-in-chief ("AEIC") that:

> 33 I understand that it is ICOP's case that the QP(D)'s specifications required the Headwall to be able to sustain a maximum face pressure of 1.75 bar before accounting for safety factor. *This is incorrect. As stated above, all of the QP(D)'s specifications were contained within the Approved Drawing itself.*
>
> 34 *There is nothing in the Approved Drawing, or in any other specifications from the QP(D), that specifies that the Headwall had to sustain a maximum face pressure of 1.75 bar with or without accounting for safety factor.*
>
> [emphasis added]

35 In our view, while Mr Ng may not be the QP(D) himself, his evidence on the requisite specifications for the headwall should be given due weight given his active involvement in assisting the QP(D) and his personal knowledge of QP(D)'s specifications. We note that Mr Ng is himself a Professional Engineer and a Specialist Professional Engineer in Geotechnical Engineering with a Masters degree in that area of specialisation. He was previously a Senior Project Engineer with the Land Transport Authority and a Technical Director of Meinhardt Infrastructure Pte Ltd. His evidence was that all the QP(D)'s specifications for the headwall and thrust wall were contained in the Approved Drawing; that drawing had been sent to the QP(D) for his review and endorsement. Mr Ng made some notes on that drawing and endorsed the same, which then became the Approved Drawing (see [18] above). There was nothing in the Approved Drawing which specified that the headwall must withstand 1.75 bar of pressure. This was conceded by Mr Nicolo Alberini ("Mr Alberini"), the deputy project manager in ICOP, during cross-examination.

36 Based on the record made available before the court, references to 1.75 bar of pressure are only found in two documents: (a) the Method Statement; and (b) the GLS Sheets in the Calculation Report. However, we are of the view that neither of these are the specifications of the QP(D) in relation to the headwall.

37 In the Method Statement, the reference to 1.75 bar pressure is found in section 12.10.4, titled "Estimation of Face Stabilization for DN 1600":

> **12.10.4 Estimation of Face Stabilization for DN1600**
>
> Parameters and settings for DN 1600 (OD2120) drive based on the borehole features are as follows:-
>
> - Length: 2230m
> - Pipe OD: 2120mm
> - TBM OD: 2180mm

- *Expected Ground Water Pressure: 1.3–1.75 bar*
- Cutting Wheel Surface Area: 3.73m^2

Operational Parameters:-

- *Face Pressure – Hydrostatic Balance = 1.3 – 1.75 bar*
- Face Pressure – Mechanical Balance = 100 – 175 bar (Torque measured in the cutting wheel motor).

…

[emphasis added]

38 As seen from the above, the reference to "1.3 – 1.75 bar" pressure is in relation to the "face pressure" that must be maintained at the face of the MBTM, *ie*, the cross-sectional area of the cutter head, during the pipe jacking process to counteract the expected ground water pressure of "1.3 – 1.75 bar" acting on the MTBM cutterhead as it bores through the soil and rock. As Mr Ng explained in his AEIC, for the MTBM to progress through the soil and rock, the face pressure at the MTBM cutter head would have to counteract the surrounding lateral earth pressure and ground water pressure being exerted on it. The MTBM operator controls the MTBM face pressure by setting the slurry charge pressure to control the "face pressure" to counterbalance these forces. Nowhere in the Method Statement is it stated that the headwall itself must be able to withstand a minimum of 1.75 bar pressure.

39 Turning to the GLS Sheets, which can be found in Annex 1 of the Calculation Report, these were prepared by One Smart's Dr Ong Chee Wee and submitted to the BCA. The GLS Sheets provide a longitudinal section view of the area of intended pipe jacking. Sheets 02 and 03 of the GLS Sheets contain drawings of the soil investigations for the pipe jacking, and tables summarise the range of "face pressure" along each chainage of the intended tunnel based on the soil investigations. Between chainages 690 and 716 (near the location of Shaft P5-2), the minimum "face pressure" was 1.35 bar and the maximum face

pressure was 1.75 bar. Once again, however, these figures pertain to the range of "face pressure" to be expected along the tunnel and say nothing at all about the specifications of the headwall, as rightly conceded by ICOP's Mr Alberini under cross-examination.

40 ICOP's position in the proceedings below and in this appeal is essentially that if the anticipated ground pressure is 1.75 bar, then the MTBM and the pipe string (*ie*, the pipes being jacked) will experience the same pressure because of Newton's third law of motion — every action will have an equal and opposite reaction. Since the headwall functions as an anchor block, ICOP argues that it will also experience the same pressure that the MTBM and pipe string are facing. With respect, ICOP's calculations of the amount of pressure that the headwall was expected to experience during the jacking operation is a separate matter from what the QP(D)'s actual specifications for the headwall were.

41 Mr Ng had testified unequivocally that the expected "face pressure" is "definitely not a specification that the Headwall had to be able to sustain a maximum face pressure of 1.75 bar". This is because "the pressure exerted on the headwall during the actual operation of the MTBM was extremely unlikely to exceed 1.0 bar". We reproduce Mr Ng's explanation below:

> 42 To explain further: there is a grout block located on the outside of the caisson wall. During the pipe jacking operation, the MTBM will pass through the headwall, break through the grout block and enter the soil layer. *It is not necessary to maintain the required face pressure while the MTBM is within the grout blocks as the grout block is largely stable and does not have any pressure acting on the MTBM. The MTBM will only need to start to apply the target face pressure when the MTBM face is within the soil.* Hence, the grout block further acts as a stable medium that lengthens the path of the annulus for the pressurised lubricating fluid to flow from the MTBM to the head wall and rubber seal and thus reduce the pressure of the lubricating fluid acting of [*sic*] the

> head wall and rubber seal. The grout block would thus ensure that the pressure exerted on the Headwall would be lower than 1.75 bar.
>
> 43 Furthermore, *even if a pressure of 1.75 bar was exerted on the MTBM face once the MTBM reached the soil layer, the pressure exerted on the Headwall will be less than 1.75 bar. This is because the MTBM would move further and further away from the Headwall as it progresses through the soil layer, resulting in losses of the pressure over the length of the passage.*
>
> 44 Moreover, even if there was any leakage through the Headwall, this would not have been a significant issue, let alone a safety issue. This is because grouting works (with polyurethane or otherwise) can be undertaken where necessary, and more pressure can be exerted to account for the 'lost' pressure due to the leakage.
>
> [emphasis added]

42 We add that Mr Ng's testimony in his AEIC is consistent with his position during his meeting with TSCE on 18 July 2018. During that meeting, Mr Ng was of the unequivocal view that pipe jacking operations could commence notwithstanding the sealing test failures. He expressed that "there is no need for high face pressure to be maintained" when the pipe jacking machine was in the grouting block and that he was confident that 1.0 bar of pressure would be sufficient for the break in through the grout block. He further expressed that if there was leakage at below 1.0 bar pressure, polyurethane grouting could be carried out immediately from outside the pipe to stop the leakage. This was recorded in his e-mail correspondence to TSCE on 19 July 2018.

43 Dato Cheng Chin Keong ("Dato Cheng"), the Managing Director of ICOP, disagreed with Mr Ng's explanation on this point. In his supplementary AEIC, he went into great detail explaining that once the MTBM breaks out from the grout block into the soil layer, the same pressure that is experienced at the cutting face will be exerted on the headwall. He also highlighted a report

produced by the MTBM's manufacturer, Herrenknecht (the "Herrenknecht Report"), which stated that regardless of how much pressure there was in the ground, the starting situation should always be that there should be no leaks between the sealing structure and the concrete shaft wall.

44 However, this also misses the real issue. As we have explained above, the only relevant questions before the court are: (a) what the QP(D)'s specifications of the headwall were; and (b) whether TSCE has complied with those specifications. Dato Cheng could very well be correct in his analysis of the amount of pressure that the headwall may experience during the pipe jacking operation, but if the amount of pressure was not stipulated as a specification for the headwall by the QP(D), then ICOP's pleaded case would still fail.

45 Therefore, considering: (a) Mr Ng's unequivocal testimony that there were no specifications that required the headwall to withstand 1.75 bar of pressure; (b) the fact that the Approved Drawings for the headwall made no mention of any specified pressure the headwall must withstand; (c) the fact that the original headwall had passed three inspections by One Smart; and (d) Mr Ng's direct communications to TSCE on 18 July 2018 that pipe jacking operations could continue without rebuilding the headwall, we are of the view that the Judge did not err in finding that there was no specification for the headwall to withstand 1.75 bar of pressure and that the headwall was constructed according to the QP(D)'s specifications. Consequently, we agree with the Judge that there was no contractual basis for ICOP to require TSCE to reconstruct the headwall. We entirely agree with the Judge's caution at [46] of the Judgment, that:

> … in technical disputes such as this, parties ought to be bound more strictly to their pleaded cases unless they are able to provide a satisfactory explanation for their omission. Cases of

> this sort tend to give rise to numerous intertwined and difficult issues, and it is not for an opponent and especially not the court to piece together unpleaded points in search of the best possible case a party may advance …

46 For completeness, we deal with ICOP's two remaining arguments on this point. First, ICOP argues that in any event TSCE had agreed to rebuild the headwall because it accepted Dato Cheng's technical explanations at the meeting on 27 July 2018. In our view, this does not assist ICOP. Even if TSCE had subsequently agreed to rebuild the headwall to meet ICOP's additional requests, that does not constitute an admission that the original headwall was not in compliance with the QP(D)'s specifications. This is especially so when TSCE's position was that it had no choice but to rebuild the headwall given ICOP's refusal to commence the Subcontract Works otherwise.

47 Secondly, ICOP argues that according to Mr Ng, the initial headwall was designed to withstand 2.5 bars of pressure but was constructed defectively by TSCE. ICOP relies on the design calculation report prepared by One Smart on 2 August 2018 for the reconstruction of the headwall, which stated that the "design pull out force" for the reconstructed headwall was "100 ton or 2.5 bar pressure acting on Pipe Jacking Machine". ICOP then argues that Mr Ng had admitted during cross-examination that the initial headwall was also designed to withstand 2.5 bar of pressure. However, this portion of Mr Ng's testimony appears to be taken out of context. We reproduce the relevant portions of Mr Ng's testimony below:

> Q … Mr Ng it says in the introduction: 'The design pull out force of the headwall is 100ton or 2.5bar pressure acting on the pipe jacking machine'. Is it your position that this has nothing to do with the amount of pressure that the headwall could withstand?
>
> …

> A Okay. Mr Lee, your Honour, what these 2.5 bar pressure means is that if the soil pressure and water pressure – because *this wall is 20 metres below ground and therefore there will be soil and water pressure acting through the caisson wall onto the headwall. So we have to make sure if there's any pressure acting on this caisson wall … the headwall will be able to be stable and attach itself to the caisson wall. Therefore, I need to make sure that this caisson wall can withstand a total pressure of 2.5 bar due to the soil and water pressure behind the caisson wall* that could be acting on … the headwall that will actually possibly detach it from the headwall, from the shaft wall. It is actually nothing to do with the pipe jacking operation.
>
> …
>
> Q Are you saying that the original headwall was able to withstand 2.5 bars of pressure?
>
> A Yes, the headwall has been able to withstand the pressure but it is not … to ensure there's no water leakage … *The 2.5 bar is to design the headwall to withstand the pressure acting on it. It is not to withstand the pressure from within the cavity pressure of 1.75 bar to push the water up. So it won't be able to prevent the water from leaking. …*
>
> [emphasis added]

48 As seen from the above excerpt, Mr Ng had explained that the specification for 2.5 bar of pressure was in relation to the "pull out force" that the headwall was built to withstand, which had "nothing to do with the pipe jacking operation". The headwall was designed to withstand 2.5 bar of pressure from the soil and water pressure acting through the caisson wall onto the headwall, to ensure that the headwall would stay attached to the caisson wall. This is a separate matter from whether the headwall was designed to be watertight when faced with 1.75 bar of cavity pressure within the headwall, which was what ICOP's multiple sealing tests were testing.

49 We are of the view that there is no specification by the QP(D) for the headwall to withstand 1.75 bar of face pressure between the cutter face of the

MTBM and the headwall. Consequently, the Judge did not err in finding that ICOP had no contractual grounds to require TSCE to reconstruct the headwall based on the results of their sealing tests (which were not required by the QP(D)). We also agree with the Judge that ICOP should be liable for the delay caused by the reconstruction of the headwall.

50 However, we are of the view that the Judge had erred in awarding TSCE liquidated damages, as opposed to general damages, for the delays caused by the reconstruction of the headwall. We elaborate on this under Issue 5 at [127] below.

Issue 2: Alleged defects in Shaft P5-1

51 At para 2(b) of its Notice of Appeal, ICOP appeals against the Judge's finding that "ICOP failed to establish a duty on TSCE's part in relation to the defects in Shaft P5-1 and/or that TSCE breached its duty (see [37] – [48] of the Judgment)".

Background facts to Issue 2

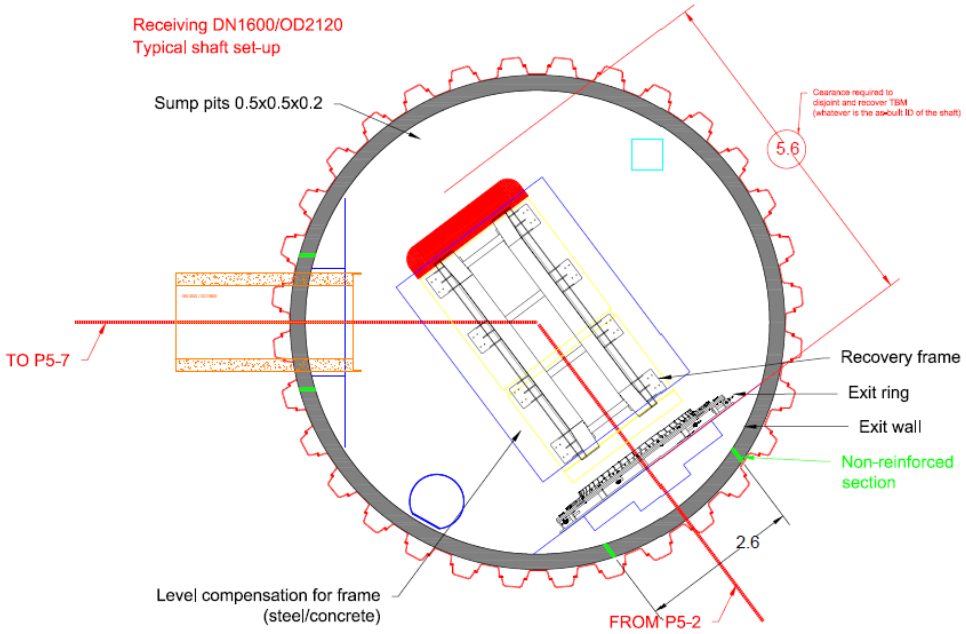
52 As noted above, Drive 1 of the Project was from Shaft P5-1 to Shaft P5-7. Drive 2 was from Shaft P5-2 to Shaft P5-1. Shaft P5-1 was therefore the launching shaft for Drive 1 (*ie*, the 1200mm pipe) and the receiving shaft for Drive 2 (*ie*, the 1600mm pipe). After Drive 2, the MTBM was to be retrieved from Shaft P5-1 for the next drive.

53 Under S/No 1.15 of the MOR, TSCE was under an obligation to construct shafts "with flushed headwall/backwall and reinforced concrete base slab *according to the project designs and microtunnelling requirement*"

[emphasis added]. Appendix B and Appendix F to the Subcontract state that the interior diameter of Shaft P5-1 must be 7.5m:

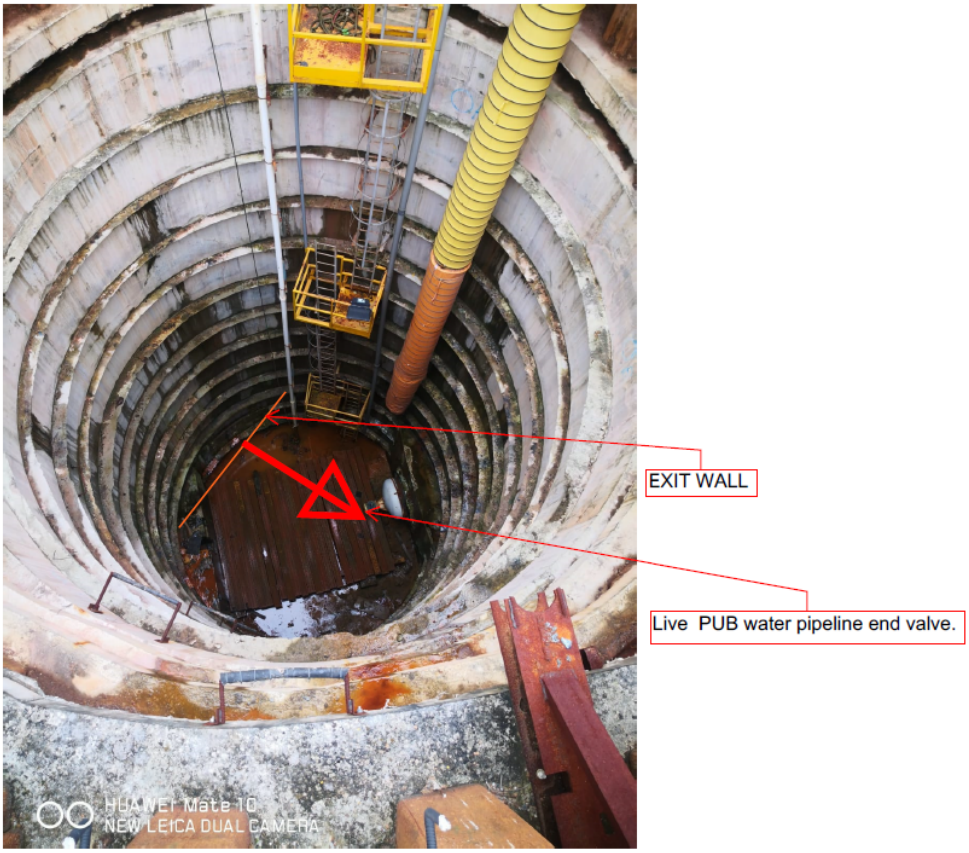
Shaft requirement	Receiving/Exit Shaft (P5-1, P5-3) ID 7.5m (min wall to wall).

54 On 6 February 2017, TSCE provided ICOP with the drawings for the shafts, including Shaft P5-1. On 21 February 2017, ICOP provided TSCE with a draft layout for Shaft P5-1. The drawing of the layout for Shaft P5-1 is reproduced below:



55 As can be seen from the drawing, it was specified that the minimum clearance required to recover the MTBM is 5.6m. The layout also envisioned that the MTBM would break through the centre of Shaft P5-2, *ie*, the path with the longest wall to wall distance in the circular shape.

56 It is undisputed that Shaft P5-1 was constructed with an interior diameter of at least 7.5m. The crux of the dispute is the presence of a protruding pipe cap and end valve in Shaft P5-1 which ICOP argues reduced the working space within Shaft P5-1. A picture of Shaft P5-1 can be seen below:



57 The protruding object annotated "Live PUB water pipeline end valve" in the image above is the pipe cap and end valve installed to cover the end of the 1200mm pipe. After the completion of Drive 1, the PUB carried out hydrotesting on the 1200mm pipe from P5-7 to P5-1, after which the tunnel line was connected to the existing pipeline. On or around 14 December 2017, TSCE installed the pipe cap and end valve to prevent water leakage. Neither party took

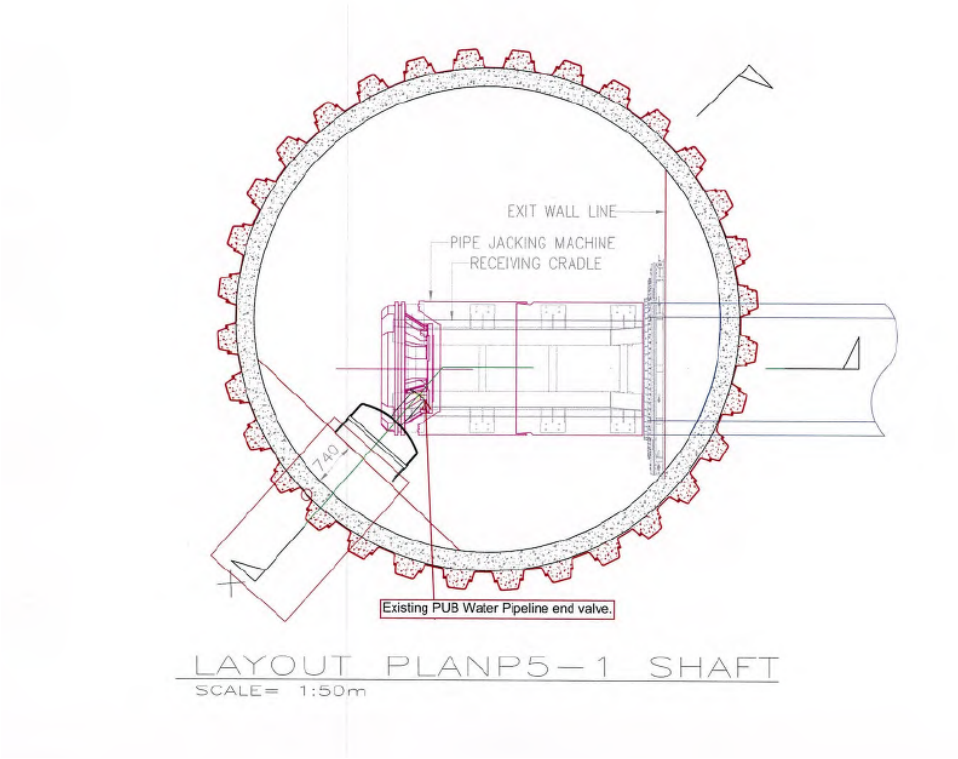
issue with the pipe cap and end valve at the time of installation. The problem only surfaced about five months later when the parties had to adjust the tunnel alignment in Shaft P5-1.

58 On 23 May 2018, TSCE informed ICOP that SP Power requested TSCE to keep a 5m clearance between the existing underground 400kV joint bay and the proposed pipeline. In view of said request, TSCE revised the alignment drawing and sought ICOP's confirmation on the feasibility of the proposed new alignment along Shaft P5-2 to P5-1. ICOP informed TSCE that there would be a misalignment between the tunnel axis and the centre of Shaft P5-1 (*ie*, the breakthrough of the MTBM would not be along the path with the longest wall to wall distance). The parties then discussed the possibility of adjusting the alignment.

59 On 7 June 2018, TSCE agreed with ICOP's suggested amendments to resolve the alignment issue and made the necessary adjustments to the tunnel alignment drawing. On 14 June 2018, ICOP accepted the new alignment on condition that "ICOP shall not be liable for any kind of damages or delays incurred either direct[ly] or indirect[ly] due to the revised alignment".

60 Subsequently, ICOP commenced pipe jacking works from Shaft P5-2 to Shaft P5-1 on 25 August 2018. On 8 December 2018, TSCE's project manager, Mr Jesse Jung Jae Hun ("Mr Jung"), informed ICOP's Mr Alberini that there might be some problems regarding the exit wall and the recovery of the MTBM in Shaft P5-1. Mr Alberini informed Mr Jung that ICOP's surveyor would investigate the MTBM tunnel alignment together with TSCE's surveyor so that TSCE could proceed with the design and the construction of the exit wall accordingly.

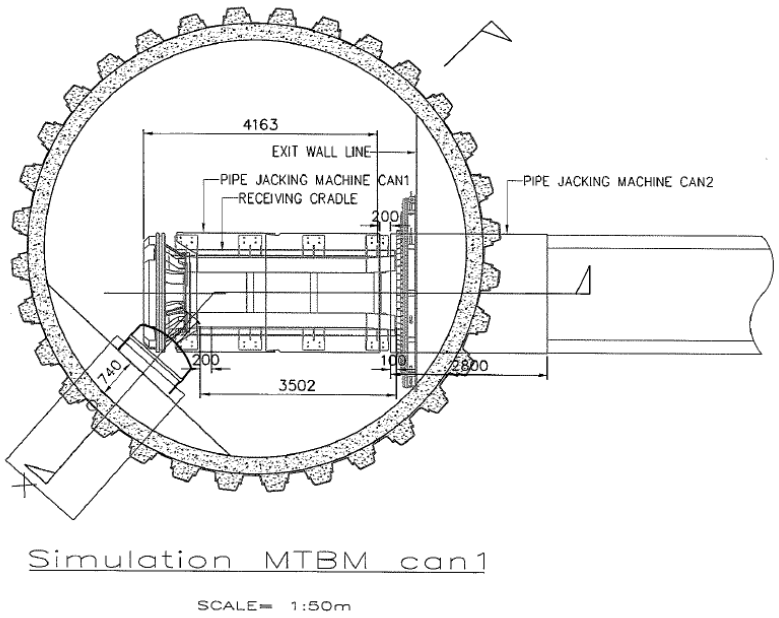
61 On 9 January 2019, TSCE's Site Engineer, Mr Peter Castillo ("Mr Castillo") informed ICOP's Mr Alberini that after superimposing the receiving cradle and pipe jacking machine in the as-built layout plan for the Shaft P5-1, Mr Castillo found that the cutter head of the MTBM would collide with the end valve after the MTBM fully breaks through Shaft P5-1. This is shown in the diagram below:



62 As seen in Mr Castillo's drawing above, the entry point of the MTBM is off-centre (the MTBM enters Shaft P5-1 slightly below the horizontal diameter of the circle). The drawing also shows that after the MTBM fully breaks through Shaft P5-1, the cutter head of the MTBM will collide with the end valve. Mr Castillo therefore recommended ICOP to dismantle the cutter

head after the pipe jacking machine broke through into Shaft P5-1 to avoid hitting the end valve, so that the MTBM could be retrieved from Shaft P5-1.

63 In response, ICOP stated in a letter dated 11 January 2019 that as *per* Appendix F of the Subcontract, the minimum wall to wall distance required for Shaft P5-1 should be 7.5m. ICOP alleged that the clearance was only 3.8m and thus insufficient for the purpose of retrieving the complete MTBM in one piece. ICOP further stated that the removal of the cutting wheel would be insufficient for the recovery of the MTBM. This is demonstrated in the following drawing:



64 As shown in ICOP's diagram, if the MTBM broke through fully, not only would the cutter head of the MTBM hit the end valve, the front part of the MTBM machine (which ICOP referred to as the articulation joint of CAN 1) would also be impacted by the end valve. For these reasons, ICOP disagreed with TSCE's recommendation that it was sufficient to remove the cutting head

to retrieve the MTBM. ICOP then attached several other diagrams demonstrating that the MTBM could only be retrieved by removing the cutter head and dismantling the body of the MTBM into three parts before each part could be removed sequentially from Shaft P5-1.

65 According to TSCE, sometime in January 2019, Mr Castillo showed ICOP's Mr Alberini and Mr Pierre Mulle (ICOP's project manager) a simulation on his laptop of how a "wider angular approach" would allow the MTBM to be recovered. Mr Jung explained during cross-examination that a "wider angular approach" meant that the MTBM could be angled differently during its exit, away from the pipe cap, so that it could be lifted out. This was because there was a range of tolerance for the exit point of the MTBM both vertically and horizontally. As *per* the PUB specifications, the horizontal alignment had an allowance of 250mm per side, which amounted to a total allowance of 500mm, and the vertical allowance had a tolerance of 75mm.

66 However, ICOP disagreed that the "wider angular approach" would allow the recovery of the MTBM and dismantled the MTBM in the manner described above at [64]. The recovery of the MTBM was completed sometime on or around 25 January 2019. On the same day, ICOP demobilised the MTBM and dispatched the MTBM to Malaysia for "reassem[bly], testing and commissioning of the system".

The parties' arguments below

67 ICOP's pleaded case in its Statement of Claim (Amendment No 2) ("SOC2") is, in summary, as follows:

(a) TSCE was obligated, either expressly or impliedly by the Subcontract, to construct Shaft P5-1 with an interior wall to wall working space of 7.5m and free from any protruding objects.

(b) Further or in the alternative, TSCE owed ICOP a duty of care to construct Shaft P5-1 with a minimum interior diameter of 7.5m and free from any protruding objects.

(c) TSCE breached its obligations under the Subcontract and/or its duty of care because Shaft P5-1 was constructed with a pipe cap protruding into it, which substantially reduced the interior working space to 3.8m.

(d) TSCE knew or ought reasonably to have known that this would have caused ICOP difficulties, such as having to dismantle the MTBM, which would lead to increased time and costs.

(e) As a result of the above, ICOP suffered loss and damage amounting to $104,154.54 which consists of $19,703.75 in manpower costs and $84,450.79 in costs incurred from dismantling the MTBM.

68 TSCE, in its Defence and Counterclaim (Amendment No 4) ("DCC4"), admitted that it was obligated to construct Shaft P5-1 with an internal diameter of 7.5m but denied that it was obligated to construct Shaft P5-1 with a minimum internal working space of 7.5m and free from protruding objects. TSCE averred that it had constructed Shaft P5-1 in accordance with the specification of 7.5m diameter. TSCE also averred that the figure of 7.5m was based on the Method Statement prepared by ICOP and that ICOP failed to specify a wider diameter for Shaft P5-1 or specify a wider angular approach for the MTBM such that it would avoid the protruding pipe cap.

69 ICOP's arguments in its closing submissions after the trial are summarised as follows:

(a) TSCE failed to account for a subterranean 400kV cable joint bay when it provided the initial tunnel alignment to ICOP. This necessitated the changes to the alignment of Drive 2 with the result that the exit point for Drive 2 was off-centre. The off-centre alignment caused a shorter wall to wall distance for ICOP to recover the MTBM.

(b) ICOP's working space was further compromised because TSCE installed the pipe cap and end-valve within Shaft P5-2.

(c) The misalignment issue caused by the revision of the initial alignment and the presence of the pipe cap/end valve resulted in ICOP having insufficient space to retrieve the MTBM in one piece.

The decision below

70 The Judge dismissed ICOP's claim on this issue. In relation to ICOP's claim in contract, the Judge held that the terms "working space" and "freedom from protruding objects" cannot be interpolated into the clear terms of the Subcontract, which only provided that TSCE was to build Shaft P5-1 with a minimum internal diameter of 7.5m "wall to wall". This is a plain, clear, and strict obligation which TSCE fulfilled. There is also no room for an implied term to the same effect because there is no gap which needs to be filled by the implication of such a duty.

71 In relation to ICOP's tortious claim, the Judge found that there is also no duty on the part of TSCE to ensure that Shaft P5-1 had 7.5m of "working space" and should be "free from protruding objects". The scope of a tortious

duty depends on the proximity between the parties and that stems mainly from the terms of the Subcontract. Given that the plain and clear terms of the Subcontract did not admit the implied terms contended for by ICOP, ICOP failed to establish the relevant and necessary duty of care on the part of TSCE.

72 Furthermore, the Judge noted that ICOP's case in its closing submissions was that *both* the presence of the pipe cap and the misalignment of the tunnel were necessary causes of ICOP's inability to extract the MTBM in one piece. However, the fact of and problems caused by the misalignment were not pleaded by ICOP. As noted above (at [45]), the Judge found that in technical disputes such as the present case, parties ought to be bound more strictly to their pleaded cases. Given ICOP's failure to plead the material facts concerning the tunnel misalignment, the Judge disallowed ICOP from relying on it and found that ICOP failed to establish the relevant and necessary duty of care on TSCE's part (Judgment at [45]–[47]).

ICOP's arguments on appeal

73 ICOP makes two main arguments on appeal. First, given that the MOR provides that TSCE was obliged to construct the shaft with a minimum diameter of 7.5m "wall to wall", it must logically be interpreted, or necessarily implied, that TSCE was to provide ICOP with that amount of working space free from protruding objects. This is because TSCE knew or ought to have known that this was the working and clearance space required for ICOP to extract its MTBM in one piece as *per* the Method Statement.

74 Secondly, ICOP argues that the Judge erred in not considering the unpleaded misalignment issue. ICOP argues that there could have been no surprise or prejudice to TSCE because TSCE was aware of the misalignment

issue. ICOP further argues that TSCE had pleaded in its DCC4 that ICOP had failed to specify a "wider angular approach" for the MTBM. ICOP argues that this meant that the misalignment issue was a live issue between the parties.

Our decision

75 We dismiss ICOP's appeal on this issue.

76 We first address ICOP's arguments on contractual interpretation. The Subcontract provides that TSCE was to build Shaft P5-1 with a minimum internal diameter of 7.5m. In our view, the term "internal diameter" pertains only to the physical dimensions of Shaft P5-1. It cannot be interpreted to impose on TSCE the additional obligation to ensure that ICOP has 7.5m of "working space" within Shaft P5-1. The concept of "working space" goes beyond the physical dimensions of Shaft P5-1 and will depend on various factors, including the nature of the operation, the size of the machinery and even the number of workers within the shaft at any material time. Requiring TSCE to guarantee a "working space" of 7.5m will mean that TSCE is expected to foresee all these factors and construct Shaft P5-1 with an internal diameter that is wider than 7.5m, which goes against the plain reading of the contractual requirement. Similarly, the term "internal diameter of 7.5m" also cannot be interpreted to mean "free from protruding objects". The presence of protruding objects within the shaft does not change the internal diameter of the shaft, or the "wall to wall" distance within the shaft.

77 In so far as ICOP relies on the implication of terms, we agree with the Judge that ICOP has not shown that the requirements under *Sembcorp Marine Ltd v PPL Holdings Pte Ltd and another and another appeal* [2013] 4 SLR 193 have been satisfied. For instance, ICOP has not shown that there is a true gap in

the contract that needs to be filled by the implication of such terms, nor that any such term is necessary for the business efficacy of the contract or that the parties would have definitely agreed to the inclusion of such terms if asked by an officious bystander at the time they concluded the contract. ICOP has also not adduced any evidence on whether there are any industry standards which interpret the term "wall to wall internal diameter" to mean "free from protruding objects". Even in this appeal, ICOP's argument on this point is no more than a bare assertion.

78 Consequently, we dismiss ICOP's argument based on contractual interpretation and implication of terms. We find that TSCE has fulfilled its obligations under the Subcontract to construct Shaft P5-1 with an internal diameter of 7.5m. There is no express or implied term in the Subcontract that requires TSCE to ensure that ICOP has 7.5m of "working space" in Shaft P5-1 or that Shaft P5-1 must be "free from protruding objects".

79 Turning to ICOP's second argument, we agree with the Judge that ICOP should not be entitled to rely on the unpleaded misalignment issue. The general rule is that parties are bound by their pleadings and are not allowed to rely on unpleaded points (*V Nithia (co-administratrix of the estate of Ponnusamy Sivapakiam, deceased) v Buthmanaban s/o Vaithilingam and another* [2015] 5 SLR 1422 ("*V Nithia*") at [38]). There is a narrow exception where the court may permit an unpleaded point to be raised if no injustice or irreparable prejudice (that cannot be compensated by costs) will be occasioned to the other party, or where it would be clearly unjust for the court not to do so (*V Nithia* at [40]).

80 We are of the view that the exception does not apply in the present case because allowing ICOP to rely on the unpleaded misalignment issue will cause

irreparable prejudice to TSCE. ICOP's unpleaded case was that the "need to change the pipejacking alignment was solely attributable to *TSCE*'s failure to account for a subterranean 400kV cable joint bay when it provided the initial tunnel alignment to ICOP" [emphasis in original]. However, this material fact was not raised by ICOP in its SOC2 or Reply and Defence to Counterclaim. A perusal of ICOP's pleadings suggests that ICOP's sole ground for its claims in relation to the defects in Shaft P5-1 pertains to the installation of the pipe cap and end valve, which ICOP argues reduced the working space within Shaft P5-1.

81 ICOP's main argument on appeal is that the misalignment issue had been pleaded by TSCE in its DCC4. We are of the view that this argument is misconceived. TSCE merely stated in its DCC4 that:

> The Plaintiff failed to specify a wider diameter for Shaft P5-1 and/or failed to specify a *wider angular approach* for the MTBM such that it would avoid the protruding pipe cap. [emphasis added]

82 The reference to the "wider angular approach" here is a separate matter from the change in alignment caused by the subterranean 400kV cable joint bay. As Mr Jung explained during cross-examination, the "wider angular approach" refers to the angling of the MTBM to arrive at an exit point within the range of tolerance (*ie*, horizontal allowance of 250mm to either side and vertical allowance of 75mm) as approved by the PUB. This is a separate matter from whether TSCE was entitled to revise its initial alignment to account for the subterranean 400kV cable joint bay. Therefore, we hold that, contrary to ICOP's contention, the issue of whether TSCE owed a duty to ICOP to account for the subterranean 400kV cable joint bay in its initial alignment planning was not put in issue by either party's pleadings.

83 The allegation concerning the misalignment issue arising from 400kV cable joint bay surfaced for the first time in Mr Alberini's AEIC. The relevant portions of Mr Alberini's AEIC are reproduced below:

> 64 On 23 May 2018, ICOP received an e-mail from TSCE's Mr Mahathevan Abiramy proposing revisions to the DN1600 pipe jacking alignment along shaft P5-2 to P5-1. TSCE stated that the proposed revisions arose from SP Power's request to TSCE to maintain a clearance of [5.0m] between the 400kV Joint Bay and the shaft …
>
> 65 ICOP had notified TSCE that there would be a misalignment between the tunnel axis and the centre of Shaft P5-1. Given that the construction sequences and underground investigation fell within TSCE's scope of responsibility under the Subcontract, ICOP thus inquired as to the possibility of TSCE's changing and/or modifying the tunnel axis. However, TSCE's Mr Abiramy stated in his e-mail dated 2 June 2018 that this was not possible …
>
> …
>
> 70 As a result of the off-centre alignment and the protruding pipe cap, ICOP would have a substantially narrower working space of 3.8m to extract the MTBM upon the completion of Drive P5-2 to P5-1 …

84 Although Mr Alberini alluded to the misalignment issue in his AEIC, we are of the view that this is insufficient to give notice to TSCE of the change in ICOP's case. We reiterate that ICOP's pleaded case was that the protruding pipe cap and end valve was the *sole* cause of the narrower interior working space of 3.8m. There is no clear indication in Mr Alberini's AEIC that ICOP is deviating from its pleaded case and pursuing claims against TSCE for its alleged failure to account for the 400kV cable joint bay in its initial design. ICOP could have and should have sought leave from the court to amend its pleadings to inform TSCE of its change in case, but it did not do so. Without such notice, TSCE will not have had the opportunity to adduce evidence at trial challenging the existence of any alleged duty of care to ensure that the initial design for Shaft P5-1 accounted for the 400kV cable joint bay.

85 Consequently, we are of the view that the Judge was correct in rejecting ICOP's unpleaded point and we dismiss ICOP's appeal in relation to the alleged defects in Shaft P5-1.

Issue 3: Alleged critical delays to the Project before 6 April 2018

86 At para 2(c) of its Notice of Appeal, ICOP appeals against the Judge's finding that "TSCE did not cause and/or was not responsible for any critical delay to the progress of ICOP's works between 24 February 2018 [and] 6 April 2018 (see [68] – [76] of the Judgment)".

Background facts to Issue 3

87 In the proceedings below, ICOP argued that TSCE was supposed to handover Shaft P5-2 to ICOP on 24 February 2018 (see [92] below), but only did so on 2 April 2018, which caused critical delays to the Project. ICOP went further to claim that it was only given "unfettered access" to Shaft P5-2 on 6 April 2018 (Judgment at [70]). ICOP argued that TSCE should be liable for the delays caused by the slow handover of Shaft P5-2 (the "worksite readiness and slow handover issue").

88 In response, TSCE argued that even after the worksite had been handed over to ICOP, ICOP was still unable to mobilise its equipment in accordance with the stipulated timelines, and the primary generator and MTBM only arrived on site on 27 April 2018 (Judgment at [74]). TSCE therefore counterclaims against ICOP for the delays caused by the slow mobilisation of its equipment (the "slow mobilisation issue").

89 Having considered these allegations, the Judge found that both parties missed the real point because the critical delays were *neither* caused by TSCE's

late handover of the worksite, *nor* by ICOP's allegedly delayed mobilisation of the equipment (Judgment at [76]). The Judge found that regardless of how promptly TSCE handed over the worksite or how quickly ICOP mobilised its equipment, ICOP simply could not have commenced pipe jacking works because TSCE had not obtained the necessary approvals from SP Powergrid Ltd ("SPPG") and the PUB (the "Authorities' Approvals") (Judgment at [76]). By the time such approvals were obtained on 25 June 2018, TSCE had already handed over the worksite to ICOP, and ICOP was ready to commence pipe jacking works (Judgment at [76]). Therefore, the Judge found that any critical delay was caused solely by TSCE's failure to obtain the necessary approvals from SPPG and the PUB on time (the "Authorities' Approvals issue").

90 The Judge found that the work programme sent by ICOP to TSCE on 8 January 2018 was the applicable baseline programme which sets out the start and end dates of works, the planned duration of works and the sequence in which the works were to be carried out (the "8 January 2018 Programme") (Judgment at [64]). According to the 8 January 2018 Programme, TSCE was required to obtain the Authorities' Approvals by 6 April 2018, which was the date the parties planned for the MTBM to be launched. However, TSCE only obtained approval from SPPG and the PUB on 20 June 2018 and 25 June 2018 respectively. Consequently, the Judge found that TSCE was liable for 69-working days of critical delay between 6 April 2018 and 25 June 2018 (Judgment at [85]).

91 The Judge went on to hold at [84] that:

> The import of my analysis, however, is that **any delays caused by either TSCE or ICOP in respect of the period before ICOP was scheduled to launch the MTBM and commence pipe jacking works** (*ie*, 6 April 2018: see [78] above) **were not critical delays.** They were non-critical delays for which neither party should be held responsible. This is because the task on

> the critical path – as I have determined – was TSCE's obligation to obtain the requisite approvals from SPPG and the PUB, and this was a delay to ICOP's *commencement* of the pipe jacking works. Therefore, the delay for which I find TSCE is liable is *only* from 6 April to 25 June 2018. **Any alleged delay resulting from the worksite readiness and handover issue prior to 6 April 2018 is, on this analysis, merely by the by, and need not be determined.**
>
> [emphasis in original in *italics*; emphasis added in **bold**]

The parties' cases

92 On appeal, ICOP argues that the Judge erred in not considering the alleged critical delays prior to the scheduled launch of the MTBM on 6 April 2018. ICOP's main argument is that TSCE was required to obtain the Authorities' Approvals well before the worksite and shaft were to be handed over to ICOP and thus, the Authorities' Approvals issue *predates* the worksite handover issue. ICOP then relies on the case of *Saga Cruises BDF Ltd and another v Fincantieri SPA (formerly Fincantieri Cantieri Navali Italiani SPA)* [2016] EWHC 1875 (Comm) ("*Saga Cruises*") for the proposition that where there are concurrent causes of delay, any critical delay is caused by the event which is first in time, or which caused the delay first (the "first-in-time approach"). On those grounds, ICOP argues that TSCE should also be liable for the delay from 24 February 2018 (*ie*, the date on which TSCE was required to handover the worksite) to 5 April 2018, in addition to the period of 6 April 2018 to 25 June 2018 which TSCE has already been found to be liable for (see [90] above).

93 In response, TSCE argues that the applicable baseline programme, *ie*, the 8 January 2018 Programme, only required TSCE to obtain the Authorities' Approvals by 4 April 2018. TSCE also challenges ICOP's reliance on *Saga Cruises*. TSCE relies on the cases of *Henry Boot Construction (UK) Ltd v Malmaison Hotel (Manchester) Ltd* (1999) 70 ConLR 32 ("*Malmaison*") and

Walter Lilly & Company Ltd v Mackay [2012] EWHC 1773. In those cases, the court held that where there are concurrent causes for a delay, and when the employer's delay events would have delayed completion in the absence of the contractor's delay, the contractor is entitled to an extension of time, but cannot recover damages for the delay (the "*Malmaison* approach"). In so far as *Saga Cruises* adopts a "first-in-time approach", TSCE argues that it represents a departure from the established line of cases adopting the *Malmaison* approach.

Our decision

94 We dismiss ICOP's appeal on this issue. We are of the view that the Judge was correct in finding that any delays caused by either TSCE or ICOP in respect of the period before ICOP was scheduled to launch the MTBM and commence pipe jacking works (*ie*, 6 April 2018) were not critical delays. We deal with ICOP's arguments in turn.

95 First, ICOP's entire argument is premised on the assumption that TSCE was required to obtain the Authorities' Approvals *before* it handed the worksite and the shaft to ICOP. ICOP relies on: (a) the work programme dated 22 February 2016 ("22 February 2016 Programme") which stated that the launching of the MTBM was to be on 17 June 2017, and thus the Authorities' Approvals were to be obtained on or before 17 June 2017; and (b) TSCE's internal baseline programme dated 30 November 2016 which provided that the requisite Authorities' Approvals were to be obtained on 17 April 2017.

96 However, we are of the view that ICOP's reliance on these documents is misplaced. The Judge has found that the applicable baseline programme is the 8 January 2018 Programme. Significantly, ICOP did not raise any issue on appeal about the Judge's finding on the applicable baseline programme. In fact,

ICOP's own expert, Mr George Wall ("Mr Wall"), testified that the 8 January 2018 Programme is the most appropriate programme to be used and that the 22 February 2016 Programme should not be considered at all because it was issued before the LOA was issued on 15 April 2017.

97 We agree with the Judge that the applicable baseline programme for Drive 2 should be the 8 January 2018 Programme. The 22 February 2016 Programme was drafted as a tentative timeline *more than a year* before TSCE issued the Notice to Proceed for Drive 2. Clause 2.2 of the LOA expressly states that the schedule of the Subcontract Works depends on TSCE issuing the Notice to Proceed "no less than 45 days prior to the *actual Commencement Date*" [emphasis added]. The timing of TSCE's Notice to Proceed for Drive 2 is therefore crucial in determining the applicable baseline programme that should be used for Drive 2. The Notice to Proceed for Drive 2 was issued on 28 December 2017, which was immediately followed by the issuance of the 8 January 2018 Programme. The commencement date for Drive 2 was stated in the 8 January 2018 Programme to be 24 February 2018, which is 47 days (excluding Sundays and public holidays) after the Notice to Proceed and consistent with the parties' agreement under cl 2.2 of the LOA. Consequently, we are of the view that the 8 January 2018 Programme is the most accurate reflection of the parties' baseline programme for Drive 2.

98 By the same token, ICOP's reliance on TSCE's internal work programme is also misplaced, given that there is no evidence that TSCE's internal work programme was accepted by the parties as the applicable baseline programme for Drive 2. Moreover, TSCE's internal work programme was also drafted in November 2016, which was a year before the Notice to Proceed for Drive 2 was issued in December 2017. This means that the timeline in TSCE's internal programme does not take reference to the "actual commencement date"

of Drive 2, as *per* cl 2.2 of the LOA, and thus, is inappropriate for use as a baseline programme for Drive 2.

99 In any event, even if TSCE had planned to obtain the Authorities' Approvals before the worksite handover, TSCE would not have caused any critical delays until 6 April 2018 (*ie*, the date of launching of the MTBM under the 8 January 2018 Programme). This is because the Authorities' Approvals are only relevant in so far as commencement of the pipe jacking operations is concerned. The lack of Authorities' Approvals does not prevent TSCE from handing over the worksite to ICOP or ICOP from mobilising its equipment.

100 Secondly, although the parties spent a great portion of their submissions arguing between the "first-in-time approach" in *Saga Cruises* and the *Malmaison* approach, we are of the view that this debate is irrelevant in the present case – it is meaningless to speak of concurrent causes to a delay when the delay in question is *not* on the critical path. As the learned author in *Keating on Construction Contracts* (Stephen Furst & Sir Vivian Ramsey gen eds) (Sweet & Maxwell, 11th Ed, 2021) ("*Keating*") puts it: "there is only true concurrency in this sense *where both events cause delay to the progress of the works and the delaying effect of the two events is felt at the same time and each is critical to completion*" (at para 8-026) [emphasis added]. Therefore, the debate on the proper approach to concurrent delays is only relevant where both events causing delay are "of approximately equal causative potency" and both events must, in fact, cause critical delays (*ie*, they must both affect the critical path of the project).

101 Given that the applicable work programme was the 8 January 2018 Programme (see [97] above), we agree with the Judge that any delays caused by either party between 24 February 2018 to 5 April 2018 were not critical delays.

The task on the critical path is TSCE's obligation to obtain the Authorities' Approvals because this was an outstanding precondition to ICOP commencing pipe jacking works. It is not disputed that by the time the Authorities' Approvals were obtained by TSCE on 25 June 2018, any prior issues concerning TSCE's slow handover of the worksite or ICOP's slow mobilisation of its equipment were no longer effective or causative of any relevant delay — the worksite had been handed over and ICOP had already mobilised its equipment and was ready to commence pipe jacking as of 22 May 2018. Therefore, any delays caused by the worksite handover issue, or the slow mobilisation issue are not critical or effective delays. Consequently, there is no need to consider the different approaches to concurrent causes in relation to the period between 24 February 2018 to 5 April 2018.

102 For the aforementioned reasons, we dismiss ICOP's appeal on Issue 3.

103 This leaves us to address one remaining point on the damages payable by TSCE for the 69 days of critical delay between 6 April 2018 and 25 June 2018 due to the Authorities' Approval issue. At the hearing before us, counsel for ICOP, Mr Shaun Lee ("Mr Lee"), informed us that the Judge, in determining the quantum of damages payable for these 69 *working* days, had erroneously used (at [86] of the Judgment) the daily rates provided by the quantum experts which were computed on a *calendar* day basis. In other words, the quantum experts arrived at the daily rates by dividing the loss that would be incurred each month over the number of *calendar days* in that month, as opposed to the number of *working days*. The working day daily rate should therefore be higher.

104 We agree with ICOP that the Judge erred in applying the calendar day daily rate when he had found TSCE liable for 69 working days of delay. We directed the parties to provide their positions on the quantification of general

damages payable in respect of the delays that the Judge had found each of them liable for. The parties were able to come to an agreement on the calculation of general damages. In relation to the Authorities' Approvals issue, the parties agreed to convert the daily rates agreed between the quantum experts to working day daily rates. The parties agreed that the revised general damages payable by TSCE to ICOP for the 69 working days of delay should be $489,064.89, instead of the $401,338.47 assessed by the Judge. Consequently, we allow ICOP's appeal in relation to the quantum of damages payable by TSCE to ICOP for the Authorities' Approvals issue.

Issue 4: ICOP's entitlement to MTBM rental costs

105 At para 2(d) of its Notice of Appeal, ICOP appeals against the Judge's finding that "ICOP is not entitled to claim a daily rental rate of S$9,120 for each day of critical delay caused by TSCE, prior to the expiry of the 18-month rental period (see [87] – [88] of the Judgment)".

106 As just described at [104] above, ICOP had been awarded $401,338.47 in delay damages for the period 6 April 2018 to 25 June 2018 (Judgment at [85]–[86]). This was computed using the quantum experts' agreed daily rates for standby costs. These rates covered, for example, manpower costs, accommodation costs, and general equipment costs, but notably excluded the cost of renting the MTBM.

107 MTBM rent was treated as a standalone category by the quantum experts because TSCE's expert, Mr Alasdair Snadden ("Mr Snadden"), doubted that ICOP would have recovered these costs in any event. This was because ICOP had rented the MTBM for a minimum lease period of 18 months from ICOP Construction (M) Sdn Bhd ("ICOP Malaysia"), a related company, and lease

payments began on the date of the shipping of the MTBM and equipment at the port of departure and was to end on the day of the return of the MTBM and equipment at the port of departure. Further, under that lease agreement, ICOP's liability to pay rent would remain even if the agreement were to be terminated before the minimum period was up. In the event, ICOP returned the MTBM and equipment on 28 January 2019; the MTBM and equipment were therefore used by ICOP for only about one year or less.

108 Mr Snadden thus opined that the 18-month minimum period meant that ICOP would have to pay 18 months (547 days) of rent in any event. By contrast, the planned works under the Subcontract would have taken only 356 days to complete under the 25 February 2017 work programme (under the 8 January 2018 Programme that the Judge found to be the applicable baseline, the corresponding duration would have been 416 days, based on the calculations of counsel for TSCE, Mr Ho Chien Mien ("Mr Ho")). Adding an allowance of 12 days for transporting the MTBM and demobilisation, there would still be 179 days of rent that ICOP had to pay, over and above the time allowed within the baseline programme (179 = 547 – 356 – 12). Hence, Mr Snadden opined that TSCE could incur up to 179 critical days of delay before TSCE would be liable for rental costs at $9,120 for each day of delay. The opinion of ICOP's quantum expert, Mr Wall, was that the rate of $9,120 ought to apply for all days of delay assessed by the delay experts.

109 The Judge preferred Mr Snadden's evidence (Judgment at [88]). He held that in the light of the minimum lease period, ICOP could not contend that it suffered remediable losses in the context of a delay claim unless it could show that TSCE caused it to incur costs in excess of what it would have had to pay in any event.

The parties' cases

110 On appeal, ICOP appears to advance its case on two alternative grounds.

111 First, it claims the MTBM rent as damages on a reliance basis, following its lawful termination of the Subcontract. Rental costs of the MTBM and equipment would be an expenditure that ICOP could not recoup due to premature termination.

112 Secondly, ICOP claims the MTBM rent as *delay* damages. In short, it refers to *Hudson's Building and Engineering Contracts* (Nicholas Dennys QC & Robert Clay gen eds) (Sweet & Maxwell, 14th Ed, 2022) ("*Hudson's*") at para 6-068, to assert that delay damages can be awarded on an expectation basis or a reliance basis or in restitution. ICOP also cited *Crescendas Bionics Pte Ltd v Jurong Primewide Pte Ltd* [2023] 1 SLR 536 ("*Crescendas (AD)*") at [206], to assert that delay damages can sound in reliance loss. ICOP submits that the court is entitled to award and/or ICOP is entitled to claim for delay damages that factors in the MTBM rent even absent a finding that ICOP had lawfully terminated the Subcontract. It argues that Mr Snadden and the Judge erred in not accounting for the MTBM rent because their approach to delay damages appears to assume that standby costs are on an expectation basis and such capital costs would be incurred in any event.

113 In response, TSCE argues that it is incorrect for ICOP to describe the MTBM rental costs as wasted expenditure since TSCE made progress payments for ICOP's works prior to termination, and ICOP would have thereby recovered the rental costs. Referring to *Law and Practice of Construction Contracts Volume 1* (Chow Kok Fong ed) (Sweet & Maxwell Asia, 5th Ed, 2018) ("*Chow Kok Fong*") at para 10.014, TSCE submits that delay-related costs should be

computed by taking the difference between the "delay" situation (*ie*, actual costs incurred as a result of works being delayed) and the notional "no-delay" situation (*ie*, expenditures expected to be incurred but for the delay).

114 Furthermore, TSCE argues that ICOP has not shown that TSCE's delays would have led to the 18-month period being overrun. TSCE had only caused 69 days of critical delay, which falls short of the 179-day buffer calculated by Mr Snadden. Even if the 8 January 2018 Programme applied, ICOP's delays would not have exceeded the available buffer.

Our decision

115 With respect, we cannot agree with the Judge. The parties have spent a lot of effort putting forward arguments on whether this is a head of reliance or expectation loss and drawing distinctions which, with respect, cloud, rather than clarify the position.

116 The legal basis of delay damages claimed by contractors or subcontractors for standby or idling costs is well established as a head of damage in building and construction law. Unless it is excluded by contract, it is routinely awarded in cases of delay caused by employers or main contractors to downstream contracting parties. This is a claim that is usually founded on a breach of an express contractual provision (an express loss and expense clause providing that the contractor is entitled to monetary compensation for loss incurred on account of the relevant delay or other claim event) or at common law for a breach of contract by an employer or main contractor who causes the delay or standby or idling time (see *Chow Kok Fong* at para 10-003). In a claim under an express contractual provision, "the scope of entitlement as formulated in the contract is important" (see *Chow Kok Fong* at para 10-003). The

contractor or subcontractor who recovers its losses as damages at common law, having first proved the delay event caused by the owner or main contractor which has delayed the works or its completion, proceeds to prove its loss but is subject to the usual rules on causation, mitigation and remoteness of damage under *Hadley v Baxendale* (1854) 9 Ex 341 (see *Chow Kok Fong* at paras 10-002, 10-003 and 10-014–10-020; *Keating* at paras 9-001 to 9-025). Delay damages or damages for "idle" time are awarded because they flow from or arise naturally, *ie*, according to the usual course of things, from the breach by the employer or upstream contractor which prevents the downstream contractor or subcontractor from carrying out its work when it is able and willing to do so. They can be awarded for discrete periods of delay that may occur during the life of a construction contract. The reason for the award of such damages is that the contractor or subcontractor's costs are increased by the delay because they have to continue to pay their workforce, their consumables (like electricity, water and other material which degrades with delay), their equipment, head office and site expenses to administer the contract or subcontract during this period of delay. It results in an extended period for carrying out the contract works than envisaged under the contract. This results in increased costs on the contractor or subcontractor to carry out and complete their work. There are many texts and articles on the internet by professional organisations and specialist companies that explain, discuss or explore how to calculate such damages, see, *eg*, Jung-guk Lee, "How to Claim Compensation for Contractor-Owned Idle Plant – Depreciation costs or rental value?" Society of Construction Law Singapore <https://www.scl.org.sg/public-resources/articles-menu/959-how-to-claim-compensation-for-contractor-owned-idle-plant.html> (15 December 2023). Standard textbooks, like *Hudson's* from their early editions have long suggested the adoption of the "Hudson formula" to calculate head office overheads and profits as a component of delay damages. Other formulae include the "Eichleay"

formula or the "Emden" formula (see *Chow Kok Fong* at paras 10-169 to 10-192).

117 In our judgment, the claim for rental of the MTBM is a classic case of delay damages, for a discrete period of delay; it is no different from the other standby costs awarded by the Judge in relation to items like head office overheads, personnel and manpower, manpower accommodation costs, Central Provident Fund contributions, mobile crane costs, a "genset" (which was removed for April 2018) as well as vehicles, all of which, were capable of scrutiny and agreed upon by the experts. The MTBM rental is no different from the case of an essential trained and highly skilled "employee driver" of the MTBM, who sits in the control container, operating the complex controls, especially those for the hydraulic jacks in the trailing steel cylinder immediately behind the cutter head, giving direction to the cutter head and ensuring the MTBM is boring in the right direction and correct depth. If TSCE caused the MTBM to be on standby and idling due to its delay in obtaining the Authorities' Approvals, TSCE cannot deny liability for ICOP's loss and damage in paying that highly skilled "driver's" wages and emoluments during the standby period on the ground that he worked under a five-year contract with ICOP and ICOP had to pay his wages anyway as he was their employee.

118 The fact that ICOP undertook a minimum rental period with a third party is an irrelevant consideration because the loss is assessed in relation to how much it cost ICOP per day to have its MTBM idle and not carry out any tunnelling and pipe laying works. The very fact that damages are assessed for idle or standby time presupposes the MTBM must first have been leased or rented from someone. As noted above at [117], it is no different from an assessment of idle time in relation to engagement of manpower, securing accommodation for the workforce, *etc*. As noted above, the Notice to Proceed

for Drive 2 was issued on 28 December 2017, and this was followed by the 8 January 2018 Programme. TSCE was supposed to obtain the Authorities' Approval by 6 April 2018. By that date, ICOP would have entered into contracts for their workforce and equipment in expectation of commencing the Subcontract works. Hence the experts, after examining the evidence, agreed upon figures for those standby or idling costs. The position in relation to the MTBM's rental is no different.

119 The relevant facts in relation to this issue are as follows.

(a) The Subcontract envisaged four sequential drives, using one MTBM: see [9] above.

(b) As noted above, the start dates for these Drives were considerably delayed: see [87] and [88] above.

(c) Be that as it may, ICOP carried out the commissioning and testing of the MTBM and its equipment on 16 and 17 May 2018, and was ready to commence tunnelling and pipe jacking on 22 May 2018 (as accepted by the Judge at [79] of the Judgment).

(d) TSCE was supposed to obtain the Authorities' Approvals by 6 April 2018. It is not disputed that in the event the Authorities' Approvals were only obtained on 20 June 2018 (in the case of SPPG) and 25 June 2018 (in the case of the PUB): see [90] above.

(e) As noted above (at [103]), the Judge correctly held that there was a causative delay of 69 days from 6 April to 25 June 2018 by TSCE. The alleged delays of TSCE (late handover of the STP area and the shaft) and ICOP (late arrival of the MTBM and main generator set) before the Authorities' Approvals were obtained were not causative or critical

delays; it is not disputed that tunnelling and pipe jacking could not commence without these approvals whereas the Authorities' Approvals were not required for TSCE to carry out work to ready the STP area and the shaft for handover to ICOP and ICOP's bringing in and installation of the MTBM and main generator set.

(f) For that reason, the Judge awarded standby costs (excluding MTBM rental) to ICOP (see [106] above). Those standby costs did not include the MTBM rental as the experts could not agree on whether that rental should be included or excluded but it was accepted by the experts and the parties that the rental was $9,120 per day.

120 Mr Snadden's reasons to exclude MTBM rental from calculating ICOP's loss and damage are set out at [107]–[108] above. In essence, what Mr Snadden was trying to put forward is that with a committed minimum rental period of 18 months to the owner of the MTBM, even if the Subcontract between ICOP and TSCE was terminated, and on the facts of the case ICOP returned the MTBM to the owner after only about one year of rental, ICOP could not pass the costs of the rental during the delays between 6 April and 25 June 2018 on TSCE as damages.

121 We cannot agree with Mr Snadden's views, and his reasoning overlooks a vital point. If, on principle, ICOP was ready to start tunnelling and pipe-jacking but was delayed by 69 working days due to the absence of the Authorities' Approvals to commence works, ICOP was forced to keep its workforce and equipment idle and would have continued to incur the costs for them. This would also have prolonged the contract period to complete the works which would also incur loss and damage to ICOP in relation to prolongation costs. Hence, even though ICOP's own contract with ICOP Malaysia for the

MTBM was for a minimum lease period of 18 months, ICOP would only be able to use the MTBM for other purposes after the end of its project with TSCE, which has been delayed. It may be that ordinarily ICOP would have to prove the quantum of that damage, but this does not arise in the appeal as the experts have examined the evidence and come to an agreement on quantum.

122 Further, Mr Snadden's view is, with respect, also erroneous because the factual reality is that parties contract on the basis that their workforce and equipment will be gainfully employed in carrying out their contract works, for which they will be paid. What they are paid will, in the normal course of things, pay for their cost of doing the contract works and leave a margin for profit as it defies commercial logic to enter into a loss-making contract save for very special reasons. We hasten to add that this does not turn the nature of standby or idling costs into a "reliance loss".

123 However, there is one important distinction between the standby or idling damages for the MTBM rental and the other standby and idling costs awarded by the Judge. The experts were satisfied that the other standby and idling costs (see [118] above), were incurred from 6 April 2018; this period ran until 25 June 2018 when the Authorities' Approvals were obtained. However, the MTBM and main generator were not sitting idle from 6 April 2018 because they had not yet been delivered to the site. There is compelling evidence that ICOP was not ready to commence tunnelling and pipe laying from 6 April 2018. This aspect was not addressed by the experts or the Judge. The Judge had noted, *inter alia*, TSCE's allegation that ICOP's MTBM and main generator only arrived on site on 27 April 2018 (Judgment at [74]–[75]), but the Judge made no findings of fact in this respect. This was because he took the view, correctly, that as far as causative or critical delay was concerned, ICOP and TSCE's respective allegations of delays against each other were not on the critical path.

124 To address the issue of standby or idling costs for the MTBM, we need to bear in mind that we are trying to put ICOP in the same position as if the breach had not occurred: see *Keating* at para 9-004. We therefore need to ascertain when ICOP was in a position to carry out tunnelling and pipe laying work, as it would suffer a loss in relation to the MTBM rental only from that point of time. We note that there was evidence that ICOP only carried out the testing and commissioning of the MTBM on 16 and 17 May 2018. TSCE alleged that ICOP was not ready to commence pipe jacking works until 18 June 2018. This was rejected by the Judge who referred (at [79] of the Judgment) to "… clear correspondence stemming *from TSCE* which suggests that, on 21 May 2018, ICOP was ready to commence pipe jacking subject to the requisite approvals being obtained from SPPG and the PUB" [emphasis in original]. This was supported by BTJV's e-mail to ICOP and TSCE dated 21 May 2018 at 9.47am which detailed the parties' notes of the meeting on 19 May 2018. The meeting notes stated that commencement of pipe jacking could not begin as "*ICOP [was] not ready* and all authority not yet cleared" [emphasis added]. On 21 May 2018 at 2.03pm, TSCE's Mr Sun replied to NTJV's e-mail, suggesting that ICOP was "ready to commence pipe jacking" pending the clearance of the Authorities' Approvals. This is further supported by the parties' work programme dated 17 August 2018 ("17 August Work Programme"), which had factored in the delays that had occurred before 17 August 2018. In the 17 August 2018 Work Programme, although commissioning and testing of the MTBM and associated equipment were stated to have been completed on 18 May 2018, the launching of the MTBM was only scheduled on 22 May 2018. The objective contemporaneous evidence clearly supported that ICOP was only ready to commence pipe jacking on 22 May 2018.

125 To summarise, no questions have been raised on the Judge's award for standby and idling costs for various items of loss, other than the MTBM rental, from 6 April to 25 June 2018. The experts had studied the evidence and were satisfied they had been incurred or suffered by ICOP; they therefore agreed on the same. However, the experts were unable to agree, albeit on principle, as to whether the MTBM rental was recoverable as a standby or idling cost because of the minimum 18-month rental period entered into between ICOP and ICOP Malaysia. On the evidence at [124] above, it is fairly clear that ICOP was only ready to commence tunnelling and pipe laying work from 22 May 2018. It would be wrong to award ICOP standby or idling costs from 6 April 2018 for the MTBM because it did not have its MTBM and associated equipment ready to start work from that date. When the very nature of standby or idling costs is borne in mind, ICOP could not be considered as incurring standby or idling costs for machinery and equipment that had not yet been delivered to site, had yet to be assembled, then tested and commissioned before ICOP would be considered ready to commence tunnelling and pipe laying work. As the award of damages on this issue is to compensate ICOP for the standby or idling costs it suffered as a result of the breach by TSCE's delay in obtaining the Authorities' Approvals in a timely manner, ICOP can only be awarded a sum for MTBM rental from 22 May to 25 June 2018, *ie*, 28 working days.

126 We therefore allow the appeal on this issue. ICOP is entitled to recover its MTBM rental cost of $9,120 per day, as agreed between the experts, but only for the reduced period of 28 working days from 22 May to 25 June 2018. This amounts to a sum of $255,360.

Issue 5: TSCE's entitlement to liquidated damages

127 At para 2(e) of its Notice of Appeal, ICOP appeals against the Judge's finding that "TSCE is entitled to claim for liquidated damages for delay as opposed to proving general damages (see [94] of the Judgment)". This head of appeal concerns the 123.997 days of delay for four items, for which the Judge awarded a total of $212,034.87 in liquidated damages ("LD") to TSCE:

(a) 49 days' delay attributed to the headwall issue – $83,790 (49 days x $1,710 daily rate of LD) (Judgment at [94]);

(b) 31.137 days' delay attributed to the noise restriction issue – $53,244.27 (31.137 x $1,710 LD) (Judgment at [104]);

(c) 22.86 days' delay attributed to the slow pipe jacking issue – $39,090.60 (22.86 x $1,710 LD) (Judgment at [126]); and

(d) 21 days' delay attributed to the slow demobilisation issue – $35,910 (21 x $1,710 LD) (Judgment at [130]).

128 We agree with ICOP that the Judge erred in awarding liquidated damages for ICOP's delays. It is undisputed that the Subcontract did not contain an extension of time clause. Therefore, if TSCE prevented or delayed ICOP from carrying out its work such that the latter failed to meet the completion date or dates, and there was no power under the Subcontract to extend time for that act or those acts of prevention, it is settled law that the liquidated damages clause is unenforceable or inoperative and time is also set at large: see *Chow Kok Fong* at para 9.156, *Hudson's* at para 16-025, and *Keating* at para 8-014; see also *Crescendas Bionics Pte Ltd v Jurong Primewide Pte Ltd* [2019] SGHC 4 at [353] ("*Crescendas (HC)*"), affirmed in *Crescendas (AD)* at [34]. At the hearing of the appeal, we queried Mr Ho, counsel for TSCE, as to whether he

was still contending that the Judge's award of liquidated damages could be supported in law and upheld; Mr Ho accepted, quite correctly in our view, that he could not support the award of liquidated damages on the existing authorities and confirmed that he would not be challenging ICOP's argument.

129 We have noted that TSCE pleaded general damages in the alternative and more relevantly, the experts had discussed the quantum of general damages and had come to an agreement on the figures that should be awarded for general damages in their joint report. Similar to the delay caused by the Authorities' Approvals above, some of the items assessed by the Judge were based on working days and others on calendar days. In these circumstances, Mr Ho and Mr Lee quite correctly informed the Court that they would discuss this and come to an agreement on the quantum for general damages in respect of these delays. We accordingly directed the parties at the end of the hearing to write in with the applicable agreed figures in the event that we were minded to substitute the award of liquidated damages with general damages instead, on the assumption that the number of days of delay remained unchanged.

130 Mr Lee, writing on behalf of both parties, informed the court by a letter dated 19 June 2023 that they had reached an agreement. The parties very helpfully agreed the quantum in computing general damages for these items as follows:

(a) where the Judge had awarded items of delay based on a working-day basis, then the working day daily rate would be applied; and

(b) where the Judge had awarded items of delay based on a calendar-day basis, then the calendar day daily rate would be applied.

131 The parties explained that they would apply working day daily rates to the former (using rates based on Mr Snadden's calculations), and calendar day daily rates to the latter (using agreed rates from the joint statement of the quantum experts). We therefore set aside the award of the Judge based on liquidated damages for delays in respect of the four items set out at [127] above and, applying these agreed rates, award TSCE the sum of $60,965.16 in general damages for these items of delay attributable to ICOP. This figure comprises the following:

(a) $23,107.26 for the 49 calendar days of delay attributed to the headwall issue (Judgment at [94]);

(b) $14,655.69 for the 31.137 calendar days of delay attributed to the noise restriction issue (Judgment at [104]);

(c) $12,245.61 for the 22.86 working days of delay attributed to ICOP's slow pipe jacking (Judgment at [126]); and

(d) $10,956.60 for the 21 working days of delay attributed to ICOP's slow demobilisation (Judgment at [130]).

Issue 6: Alleged delays relating to noise restrictions

132 At para 2(f) of its Notice of Appeal, ICOP appeals against the Judge's finding that "ICOP is to pay TSCE [$53,244.27] for causing 31.137 days of critical delay … as ICOP bore sole responsibility for ensuring that noise restrictions are complied with so that pipe jacking works can be carried out throughout the day (see [95] – [104] of the Judgment)". We refer to this as the "noise restriction issue".

133 Delays occurred because ICOP could not work in two ten-hour shifts each day from Monday to Saturday. The National Environment Agency ("NEA") had initially granted TSCE's application for ICOP to work for such periods on or around 16 July 2018, but this approval was withdrawn on or around 11 September 2018 as the site exceeded permitted noise levels. For convenience, we refer to this as the permit's "cancellation".

134 As noted by the Judge (at [65(d)] of the Judgment), ICOP's complaint was essentially that: (a) TSCE failed to obtain permits for ICOP to carry out the Subcontract Works for 20 hours per day; and (b) despite ICOP's efforts to mitigate noise generated by the works, TSCE's actions did not aid but exacerbated the noise generated.

135 In response, TSCE accepted that it was to obtain a permit for ICOP to carry out its works, and claimed that it had fulfilled its obligation. The permit, however, required works to be performed within permissible noise limits, but ICOP persistently generated noise in excess of those limits, through no fault of TSCE, and failed to sufficiently mitigate the noise generated (Judgment at [66(d)]). The Judge found that TSCE had obtained the requisite permit, and that ICOP, in failing to sufficiently mitigate noise, caused 31.137 days of delay.

136 The thrust of the parties' cases remains substantially unchanged on appeal. We deal with Issue 6 in three parts:

(a) Did TSCE obtain the requisite permit under the Subcontract?

(b) Who was responsible for the permit's cancellation in the circumstances?

(c) If ICOP is liable for delay damages, how long was the period of critical delay?

Did TSCE obtain the requisite permit under the Subcontract?

The parties' cases

137 ICOP's pleaded case was that TSCE "had failed to obtain permits … to permit ICOP to carry out the Subcontract Works from 20 hours a day, from Monday to Saturday".

138 ICOP's submissions, however, take on a different character. There, ICOP contended that TSCE's obligation was not merely to obtain permits for 20 hours of work daily. Instead, it was to obtain permits for 20 hours of work daily *without condition* or without restriction as to the noise that could be generated.

139 In this regard, ICOP's Dato Cheng's testimony was that TSCE did not obtain a work permit "suitable for the actual work onsite", which was important for ICOP's equipment to operate 24 hours "based on the baseline that NEA wanted". The Appellant's Case also refers to meetings between ICOP's Dato Cheng and TSCE's then-director Mr Derick Pay Teow Heng ("Mr Pay"), where Dato Cheng stressed that ICOP's quotation was contingent on its ability to work round-the-clock. ICOP says, in response to this, that Mr Pay "never caveated or explained that ICOP would nevertheless have to ensure that its works did not exceed a certain noise level or that there would be any risks or restrictions". The Appellant's Case also stresses that Mr Ho never cross-examined Dato Cheng on these points. Nor did he call on Mr Pay to give evidence on the same when he could have.

140 In response, TSCE highlights that it was not ICOP's pleaded case that terms such as "permissions" and "authorisation" in the Subcontract required TSCE to obtain a permit for ICOP to work 24 hours *without restrictions* or that TSCE bore the obligation to keep noise levels within any prescribed limits.

Our decision

141 It is undisputed that TSCE *did* obtain a permit for ICOP to work round-the-clock. However, the more expansive obligation to obtain a permit to work *without restriction* as to noise is both unpleaded and unsubstantiated. Nonetheless, because of the time spent on this issue by the parties and an important point of law that was not addressed by the parties, we shall proceed to consider the same and express our views.

142 ICOP highlights three provisions of the Subcontract to support its case, but upon examination, we find that none of these suggest that the permits were to be without restriction as to noise levels.

143 First, ICOP refers to S/No 2.12(a) of the MOR. However, this merely states in the most general of terms that TSCE was to obtain "[a]ny and all local Permits and authorisations", save for the Notice to Commence Earthworks permit that ICOP was to obtain. As TSCE argued below, all this required was for TSCE to obtain permits existing under local law, and not to obtain some permit that does not exist (*ie*, one that allows ICOP to generate noise in excess of what NEA permitted).

144 ICOP also refers to paragraph 7 of ICOP's Method Statement. However, this simply sets out "Working hours & shift patterns", and describes what ICOP was to do, not what TSCE was to do:

> **7. WORKING HOURS & SHIFT PATTERNS**
>
> The installation of the proposed Potable water pipeline will be implemented with a 22hours /2shift work system. Each shift will be anticipated to work for 10 hours including 1 hour of break. We will ensure that the crew receive full accomplishment as according to the local Singapore labour law and considering the fatigue plan. An average of 23-26 days per calendar month will be the actual working period for the crews.
>
> All tunnelling activities will be carried out on day including night shift therefore night works been fully taken into account of the entire work programme.
>
> | | |
> |---|---|
> | Dayshift Working Hours | **06:00am to 18:00pm** |
> | Nightshift Working Hours | **18:00pm to 06:00am** |
> | Working days | **Monday to Saturday** |
>
> [bold in original]

145 Finally, ICOP refers to paragraph 4.1(p) of Appendix F to the LOA, which is ICOP's final quotation; however, this only reiterates that TSCE was to obtain permits for night and weekend work, and that this was factored into the pricing of the Subcontract:

> **4. Prices and General Terms & Conditions**
>
> …
>
> **4.1 Compliance Tender (Remeasurable)**
>
> …
>
> Above prices include the terms and conditions as follows:-
>
> …
>
> o) All work Permits by authorities by **TSC**;
>
> p) Working Shift shall be 10 hours per day, double shift, 6 days per week. All relevant permit for Night and weekend work by **TSC**;
>
> …
>
> [bold in original]

146 On their face, these three provisions do not assist ICOP's case. Moreover, ICOP has not pleaded that a contextual interpretation of these obligations would require the permit to be one without condition. It has not even pleaded what the relevant context to be taken into account is. Nor has ICOP argued that such a proviso should be implied. Finally, ICOP has not framed a case in misrepresentation, based on what Mr Pay said (or did not say) at the meeting with Dato Cheng.

147 As such, whatever ICOP's subjective or commercial expectations may have been, it has not shown that TSCE was contractually obliged to obtain a permit for ICOP to work 20 hours a day *without restriction as to noise*.

148 At this juncture, we find it necessary to point out that neither party has squarely addressed the legal statutory prohibitions on noise levels generated by construction sites and whether they can be waived at law. There was also no systematic inquiry into the facts, aided preferably by expert evidence, on what equipment generated the noise or contributed to the overall noise levels resulting in the permitted levels of noise levels being exceeded (we return to this point at [173] below). That would have gone a long way to identifying which equipment or works caused the noise and therefore who was responsible for it.

149 ICOP's submission set out above (at [138]) is impossible to sustain. As a matter of law, in Singapore (and indeed in Malaysia where there is equivalent legislation, which is where ICOP's team had experience operating), the noise levels a construction site is allowed to generate are subject to stipulated limits in the Second Schedule to the Environmental Protection and Management (Control of Noise at Construction Sites) Regulations (Rg 2, 2008 Rev Ed) ("EPMR"). Relevantly, there are prohibitions on noise levels for worksites and work being carried out near residential buildings located less than 150m from

the worksite. As a general rule, work is not allowed on Sundays and Public Holidays. We take judicial notice of these provisions in the EPMR under s 59(1)(*a*) of the Evidence Act 1893 (2020 Rev Ed).

150 In this case, as there were residential buildings located less than 150m from the worksite, the noise restrictions were as follows. On Mondays to Saturdays:

(a) from 7am to 7pm, the maximum permissible noise levels from the construction site is 75 dBA (decibels) where the Leq (*ie,* the equivalent continuous noise level over the specified period) is 12 hours and 90 dBA where the Leq is five minutes.

(b) from 7pm to 10pm, the maximum noise is 65 dBA for a Leq of one hour and 70 dBA for a Leq of five minutes.

(c) from 10pm to 7am, the maximum is 55 dBA whether for a Leq of one hour or five minutes.

151 These noise limits are enforced as a matter of law. This is not something that is unknown to the construction industry. Indeed, the opposite is true. It is based on the self-evident fact that noise is a form of pollution, just as smoke and emissions from factories or badly maintained vehicles, or the discharge of effluent by factories, are; it is therefore the subject of well-known legislation of long standing. We might also add that there are waivers allowed in very limited circumstances, *eg*, reg 3(5) EPMR disapplies noise limits in specified types of work like repair and maintenance work to public roads and repair work to any sewer, drain, water, gas or electricity line. The obvious necessity to carry out emergency repairs or maintenance to public services and utilities is apparent.

None of these waivers or exceptions apply to normal construction activity at construction sites.

152 The Judge recognised this when he said, in relation to noise constraints, at [99]: "There would be very little utility in ICOP ensuring its equipment could, mechanically, be used when *legally*, they were prohibited from doing so" [emphasis added]. As we have noted above, ICOP's submission that TSCE was to obtain a permit to work two ten-hour shifts *without restriction* as to noise levels is impossible to maintain as a matter of law. TSCE discharged its subcontract obligation by obtaining the permits it secured for ICOP to carry out its tunnelling and construction of the pipes for the two ten-hour shifts per day.

Who was responsible for the permit being cancelled?

Who was responsible for mitigating noise on site?

153 The Subcontract does not provide who should take noise prevention or abatement measures, whether generally or in relation to specific equipment and during their operation. As we next explain, it therefore fell on each party to ensure that the equipment it supplied or the construction activity it carried out did not generate noise levels which breached the maximum permissible noise limits referred to above.

154 Under S/No 1.2 of the MOR, ICOP was responsible for selecting the suitable MTBM for the tunnelling and construction of the pipeline. Similarly, under S/No 1.10, ICOP was to provide a generator to supply electricity for its machines and equipment and under S/Nos 1.24 and 1.25, a crane for every shaft to install pipes, machinery and equipment into and out of the shafts. These pipe construction works by MTBM included the STP (a plant to separate the rock and soil from the drilling fluid), a slurry system with slurry pumps and pipes,

bentonite injection pumps and generators (as set out the Method Statement). We digress to note that under cross-examination, ICOP's Dato Cheng accepted that the whole worksite was entirely comprised of ICOP's equipment and plant. Having noted that concession by Dato Cheng, it appears that TSCE did have *some* equipment in the way of pumps and piping on site. Under S/No 1.17 of the MOR, pumping out water that leaked into the shaft, was TSCE's responsibility. Under S/No 1.19, TSCE was responsible for the proper water treatment of water for site and "… shaft de-watering at site to comply with [the relevant authorities]" and under S/No 1.20, for the loading and removal, including transportation of waste material coming from the microtunnelling to temporary or permanent dumpsites.

(1) The decision below and the parties' cases

155 We note that the Judge held that cl 4.8.5 of the LOA had placed the obligation on ICOP to ensure that noise restrictions were complied with (Judgment at [99]). Clause 4.8 provides:

> **4. [Subcontract] Sum**
>
> …
>
> 4.8 You [*ie*, ICOP] acknowledge that you have, in agreeing to the [Subcontract] Completion Date and the [Subcontract] Sum, taken account of all necessary matters and things, including but not limited to the following:
>
> > 4.8.1 all incidental, ancillary and other works and expenditure, whether separately or specifically mentioned or described in the Scope of Sub-Contract Works and / or which are necessary to carry out and complete the Sub-Contract Works;
> >
> > 4.8.2 all work which can reasonably be inferred from the Sub-Contract including any design for the completion of the Sub-Contract Works so that the Sub-Contract Works are ready for handing over to the Main Contractor at the standard and in the condition and

> upon the terms specified in the Sub-Contract Documents;
>
> 4.8.3 all necessary off-site storage (including transportation, rental fees, insurance, and all handling works) to suit the Main Contractor's Main Contract Programme;
>
> 4.8.4 all costs in respect of time delays caused by workmen, pay for annual and public holidays, rest days, travelling time, expenses, fares and transport, non-productive time, incentive and bonus payments, Foreign Workers Levy, Central Provident Fund contributions, Skills Development Fund contributions, Mosque Building Fund contributions and other government levies and any other costs or disbursements arising from the employment of labour; and
>
> 4.8.5 all requirements for plant and equipment to be available for operation 24 hours a day for the duration of the [Subcontract] Works, *subject to permission being obtained from the Main Contractor and, where required, the relevant authorities*.
>
> [emphasis added in italics; bold in original]

156 The Judge held (at [99]) that cl 4.8.5 was not limited to the "mechanical" availability of ICOP's plant and equipment. He observed that the clause's language was "broadly cast" and "objectively, seems to have in mind the goal of timely completion" through ICOP's plant and equipment being generally available for use. As noted above (at [152]), the Judge reasoned that there would be little utility to ensuring the mechanical availability of ICOP's equipment for use if they were legally prohibited from being used.

157 ICOP argues that cl 4.8.5 does not hold ICOP responsible for ensuring operations on a 24-hour basis; it merely confirms that any schedule for completion of the works was predicated on ICOP being able to operate on a 24-hour basis and on ICOP's plant and equipment being available for 24 hours a day. The proviso in cl 4.8.5 was not ICOP's responsibility to ensure; instead,

the MOR placed the obligation on TSCE to obtain the relevant authorisation. In response, TSCE largely reiterates the Judge's findings.

158 Additionally, ICOP argues that the obligation to manage noise was always TSCE's. It refers to how the MOR required TSCE to obtain the NEA permit and to interface with other entities, and how it was always TSCE and never ICOP that was involved in the process of obtaining the permit and engaged in correspondence with other stakeholders concerning the same. In a related vein, ICOP's closing submissions below had noted that TSCE, NEA, the PUB and BTJV had been corresponding between September 2017 and May 2018 without ICOP, and that on 3 May 2018, NEA had provided observations on potential noise issues following a site visit. However, ICOP was never informed of these comments, nor required by TSCE to undertake any mitigation works prior to Drive 2.

(2) Our decision

159 We have set out above (at [149]–[151]) why, without the need to specifically set it out as a contractual term, all contractors and subcontractors have to comply with the Environmental Protection and Management Act 1999 (2020 Rev Ed) and the EPMR promulgated thereunder. Having said that, well drafted contracts or subcontracts, perhaps as a matter of abundant caution, do contain a provision whether in the general or special conditions or the specifications or in the preambles to the bills of quantities, a provision that the contractor or subcontractor has to comply with all laws and regulations in relation to their construction activity (see, for example, cl 7(1) of the SIA Conditions of Contract (Lump Sum Contract, 9th Edition) and cll 7.1 and 38.1 of the Public Sector Standard Conditions of Contract for Construction Works 2020). Be that as it may, the absence of such a provision does not change the

legal position of the parties above (at [153]). Each party was responsible for either providing machinery or equipment which did not produce noise beyond the allowable limits or if they did, to implement effective noise suppression measures so as not to exceed the allowable limits by law.

160 We have already referred to the Judge's construction of cl 4.8 in his Judgment (at [99]) where he stated that the opening words of cl 4.8 and 4.8.5 "… squarely placed the obligation on ICOP to ensure that noise restrictions are complied with so that pipe jacking can be carried out through the day." In our view, while cl 4.8 does not go so far as to place the obligation *solely* on ICOP (to the exclusion of TSCE) to comply with the statutory noise limits, the clause is entirely consistent with our point at [159] that ICOP would be responsible for noise mitigation in so far as this concerned its machinery, equipment and activity. The opening words of cl 4.8 provide that in agreeing to the completion dates and the Subcontract Sum, ICOP has "... taken into account all necessary matters and things". This is certainly wide enough to include the cost of complying with applicable laws and regulations. Further, as provided for in cl 4.8.5, as we have already stated above, it would be impossible to get "permission" from the authorities to carry out works without any limit as to legal noise restrictions, let alone carrying them out during the night as well when there are more stringent noise limits. We would add that in similar vein, cl 4.4 (as modified by the Supplemental Letter) provides that the rates in the Bills of Quantities "… are inclusive of all incidental, ancillary and other works and expenditure … in order the complete the Sub-Contract Works …", and by cl 4.7, ICOP confirms that it has satisfied itself as to, *inter alia*, the correctness and sufficiency of the Subcontract Sum which is "… deemed to cover all [of ICOP's] obligations under the Sub-Contract and all matters and things

necessary for the proper construction and completion of the Sub-Contract Works by the Completion Date …".

161 ICOP's argument concerning the MOR and TSCE's interfacing with external authorities and stakeholders (see [158] above) ignores two important points. First, as we have noted above, TSCE's obligation was to obtain a permit to operate two ten-hour shifts; that obligation did not include getting a permit that dispensed with compliance with noise level prohibitions. Also, the obligation did not involve noise mitigation. Secondly, while the correspondence from September 2017 to May 2018 shows that TSCE was more closely involved than ICOP in liaising with the authorities and other stakeholders on noise mitigation matters, this is hardly surprising. As far as the authorities and stakeholders were concerned, TSCE was the party which was responsible. ICOP was a domestic subcontractor to TSCE. The correspondence does not show that *TSCE* was under an *obligation*, *vis-à-vis ICOP*, to manage noise. Whether TSCE was responsible for noise issues *vis-à-vis* the PUB or BTJV is, of course, a separate matter.

162 In our judgment, ICOP had the obligation to ensure that applicable noise limits set out in the EPMR were not breached by its equipment and machinery, and the carrying out of the Subcontract Works. This was in fact acknowledged by Dato Cheng in cross-examination:

> Q: Dato', you agreed with me earlier that any contractor coming to Singapore has to comply with the rules and regulations governing construction in Singapore, do you agree?
>
> A: Agree.

163 This is consistent with how ICOP first reacted after being informed by TSCE on 4 September 2018 that the site's noise levels exceeded the applicable

limits. ICOP had been informed by TSCE's environmental control officer that most of the noise had come from ICOP's 1100kVA generator and ICOP was offered suggestions on how to limit the noise. As Dato Cheng conceded in cross-examination, ICOP did not react then by stating that it had no responsibility to limit noise or that any mitigation measures taken would only be out of goodwill.

164 Similarly, we note that ICOP accepted that it was to take reasonable steps to minimise noise. This is clear from its response to TSCE's request for further and better particulars:

> [TSCE] was to obtain a permit which would allow [ICOP] to work for the contractually agreed time periods of 20 hours a day from Monday to Saturday, *subject to [ICOP] taking reasonable steps to minimise the noise generated by its works*. [emphasis added]

165 By the same token, TSCE had the same obligations in relation to its machinery, equipment and its scope of works. If any of its machinery, equipment or method of work breached the permissible noise limits, then the obligation to take noise abatement measures was TSCE's.

Which party was responsible for the permit's cancellation in the circumstances?

166 The inquiry now shifts to identifying the party whose conduct caused the permit's cancellation, and, in turn, the delay to the works.

167 Before we turn to the noise mitigation measures attempted by the parties, we briefly address a preliminary concern of the Judge that inadequate mitigation had not been sufficiently pleaded as a cause of the 31.137-day delay attributable to noise issues (as opposed to the sole cause being TSCE's alleged failure to obtain a permit for round-the-clock works without restriction).

(1) The sufficiency of ICOP's pleadings on TSCE's alleged failure to mitigate noise

168 The Judge considered ICOP's pleadings to be defective (Judgment at [101]). Its Reply and Defence to Counterclaim (Amendment No 2) averred that it was "[TSCE's] failures that resulted in [ICOP] being unable to work for the contractually agreed time periods". In the Judge's view, this pleading was inadequate because it said nothing about what TSCE's failures were. Further, ICOP's response to TSCE's request for further and better particulars on this paragraph only referred back to paragraph 61(f) of its SOC2, which merely asserted that TSCE had failed to obtain the requisite permits.

169 With respect, in our judgment, ICOP *did* plead what TSCE's failures were at paras 61(g), 64(b)(v) and para 64(b)(vi) of its SOC2. In those paragraphs, ICOP asserted that TSCE failed to exercise care in allocating space for ICOP's equipment, and this exacerbated the noise generated. A particular example of this was situating ICOP's 1100kVA generator on an elevated platform, notwithstanding warnings from ICOP. ICOP further asserted that TSCE did not consider, adopt and/or approve ICOP's proposed noise mitigation measures. These measures included introducing "alternative locations for its equipment, replacing its equipment with quieter models, erecting sound barriers, and suggesting other possible noise mitigation measures for TSCE's consideration and approval". In our view, these sufficiently particularised TSCE's alleged failures.

170 Whilst the Judge was correct to criticise ICOP's response to TSCE's request for further and better particulars as merely repeating TSCE's alleged failure to obtain the requisite permit, this does not alter the point that ICOP's SOC2 had already provided sufficient particularisation.

(2) The sufficiency of mitigation measures taken

171 On the Judge's analysis, because the obligation fell on ICOP to keep the noise generated below permitted limits, the "default position" was that ICOP would be liable for the permit's cancellation unless it could show that TSCE did something to bring about the permit's cancellation through no fault of ICOP. The Judge found that no such allegation was made, and thus, ICOP's delay claim failed (Judgment at [102]).

172 Given our view that each party was responsible for the noise generated by its own machinery, equipment and scope of works (see [162] and [165] above), as well as our view that ICOP has sufficiently pleaded TSCE's failure to mitigate noise (see [169] above), it was for each party to show that the other had caused the relevant delay through the latter's inadequate noise mitigation, should it wish to claim delay damages for the same. The question is whose machinery or works caused the noise levels to breach the maximum permissible levels and whether that party took adequate noise mitigation measures to rectify the problem. The Judge reference to the "default position" should be understood in this light. He likely reached this view because there was no serious dispute that it was ICOP's equipment and machinery that substantially contributed to the generation of noise. In this sense, it was for ICOP to show that it was not responsible for the noise limits being exceeded. On balance, as we next explain, we are satisfied that it was ICOP's equipment and machinery that was exceeding the noise limits and ICOP's failure to mitigate that led to the permit's cancellation, and not any failure on TSCE's part.

173 As noted above (at [148]), we are faced with the unsatisfactory position on the lack of proper evidence and assistance from acoustic experts in answering this question. There was no attempt by the parties to present a proper analysis

or to adduce expert evidence to identify the contributors or sources of the noise, to measure their levels and to quantify the mitigating effect of measures which both parties claim were carried out.

174 Instead, the evidence relied on by the parties largely came in the form of contemporaneous correspondence involving the *parties*, setting out their subjective views on what steps ought to have been taken and blaming each other for not doing more. To the extent that parties' submissions sought to narrow down, for example, the relevant contributors of the noise, this was not firmly grounded on compelling objective and contemporaneous evidence.

175 In this case, there is a reference to ICOP's original 1100 kVA generator causing noise at 85–90 dBA from a distance of five metres, and to ICOP replacing it with a quieter generator causing noise at a lower level of 70–75 dBA from a distance of five metres. We do not know, for example, what level of noise TSCE's pump or pumps produced compared to ICOP's 1100 kVA generator. If both ICOP and TSCE contributed to the noise levels, we do not have any expert evidence on the percentage each machine or piece of equipment contributed to the overall noise produced by the worksite.

176 It is perhaps for this reason that ICOP's case hinges on the NEA's decision of 3 December 2018 to allow works to continue on a 24-hour basis (after works had earlier been stopped on or around 11 September 2018). ICOP uses this as a yardstick for asserting that sufficient noise reduction had been achieved. ICOP also points to the testimony of TSCE's project manager, Mr Jung, to suggest that he had accepted that the NEA's approval meant that *ICOP's* noise mitigation measures had been satisfactory. There are, however, three problems with this argument.

177 The first problem is that the NEA's approval did not mean that sufficient noise reduction had been achieved. The NEA's approval was essentially probationary in nature. It was not a confirmation that noise levels had been successfully reduced, only that the NEA was prepared to give TSCE/ICOP a chance at making good its promise to implement adequate noise mitigation measures. Importantly, TSCE/ICOP continued to face difficulties in keeping the noise within permitted levels. These points are illustrated in the following correspondence:

(a) An e-mail from TSCE's Mr Sun dated 27 November 2018 stated that "we have to monitor and rectify continuously until complying NEA level if necessary for initial period of night work".

(b) An e-mail from TSCE's Mr Jung dated 3 December 2018 (which is also the date when NEA decided to allow works to continue on a 24-hour basis), which added that work would continue to 12am "to see if noise can be [*sic*] permissible level", with 24-hour work to resume the following week only if noise levels could be controlled.

(c) BTJV's summary of the 6 December 2018 pipe jacking meeting stated that when ICOP worked on 5 December 2018 until 11pm, the noise level went slightly higher than the permissible limit of 62dB at Block 116, with the operation of ICOP's dewatering unit and the 800kVA generator.

(d) TSCE/ICOP's update at the 7 December 2018 pipe jacking meeting stated that they were still unable to get the noise level within permissible levels in their attempt on 6 December 2018. As such, on 11 December 2018, TSCE updated that it would instead write to NEA seeking an adjustment to the permissible noise level.

(e) A letter from ICOP dated 14 December 2018 which noted that the noise level tests on both 6 and 7 December 2018 had failed.

178 The second problem with ICOP's argument is its characterisation of Mr Jung's testimony. Contrary to what ICOP suggests, Mr Jung did not concede that the 3 December 2018 NEA approval was granted *because ICOP* had achieved adequate noise mitigation. All he said was that the NEA had inspected the site again in November 2018, TSCE had appealed for the limit to be relaxed but the NEA rejected this, and the NEA finally allowed 24-hour work on 3 December 2018 as long as ICOP could comply with its requirements during the night. There is no mention that this was *due to* ICOP's measures:

Q	:	Just to summarise, basically, on 3 December 2018 NEA reversed the stop work order at night?
A	:	Yes.
Q	:	This was because the noise mitigation measures were satisfactory?
A	:	At that time they said, yes, yes.

179 The third problem is that, as the Respondent's Case points out, even if noise mitigation was satisfactory *from* 3 December 2018 onwards, this does not change the fact that the works had been delayed between September 2018 (when NEA stopped night works) and 2 December 2018. For this period, any mitigation from ICOP could not have been satisfactory.

180 For these reasons, ICOP has not shown that sufficient noise mitigation had been achieved, much less that any mitigation achieved was due to its actions.

181 In our judgment, and on the available evidence, ICOP contributed substantially to the noise generated at the site. In an e-mail from the NEA dated

20 September 2017 that was sent following a site visit and discussion with the PUB, the main noise sources were identified to be the caisson opening (where noise from tunnel works would escape to ground level), the STP, and possibly the secant bored pile. While subsequent emails referred to other sources of noise, the STP and the 1100kVA generator (which fell within ICOP's remit) routinely featured as major noise contributors. Indeed, there is evidence that the initial 1100kVA generator used by ICOP generated 85–90dBA based on readings taken at a 5m distance.

182 Even after the noise generated proved excessive, ICOP did not take timely and effective mitigation measures. For example, after being informed of the noise issue around 4 September 2018, ICOP only decided to replace 1100kVA generator on 18 September 2018, and the replacement only arrived on 1 November 2018. It was also only on 10 November 2018 that it undertook "[r]oofing of the generator and extension noise barrier dewatering unit as instructed by TSCE". Moreover, ICOP could have, but did not, undertake further noise mitigation measures in respect of its STP, for example, by installing extended noise barriers in the dewatering unit. ICOP's explanation was that mitigation could not be applied directly to the STP since it was already an enclosed, containerised unit. TSCE's rejoinder is that the STP could have been enclosed further: TSCE did so itself after the Subcontract was terminated, and if ICOP believed that further mitigation was not possible, it would not have earlier agreed to install noise enclosures without protest on 13 September 2018. On the available evidence, we agree with TSCE that ICOP has failed to show that it could not have installed the relevant enclosures around the STP – whether by way of technical evidence about the STP or site limitations, or contemporaneous factual evidence stating that this would not have been feasible.

183 We note that ICOP submits that the Judgment does not make any finding that ICOP refused to, or otherwise failed to, comply with any instructions from TSCE to mitigate the noise issues. This submission, as noted above, cannot get off the ground as it is ICOP's obligation to take such noise abatement measures as are necessary to comply with the legal noise limits. It is not for TSCE to tell ICOP what to do. Further, this apparent omission should not be overstated. Given the path that the Judge's reasoning took, it was sufficient for him to observe that ICOP failed to show that TSCE's conduct prevented ICOP from working round-the-clock (see Judgment at [102]).

184 ICOP bears the responsibility and risk that the excessive noise generated by its machinery, equipment and its works would lead to the NEA permit being cancelled. Being a specialist subcontractor for microtunnelling works, ICOP would have been aware that its plant and equipment would generate noise, and was best placed to assess how much noise this would be and what abatement measures needed to be put in place to operate within the legal noise limits. Indeed, the very concerns raised by Dato Cheng at his meeting with TSCE (referred to at [139] above) suggest that ICOP *was* acutely aware of the risk of excessive noise being generated. This is unsurprising given that the worksite was in close proximity to built-up areas which had residential buildings. In the circumstances, if ICOP required a higher noise limit suitable for its specific equipment, assuming that could be obtained, it could reasonably be expected that ICOP would raise it with TSCE ahead of TSCE's procurement of the NEA permit. Yet, it was not in the discussions between Dato Cheng and Mr Pay (see [139] above). We do not agree with the submission made at the hearing of the appeal by Mr Lee that "everything, in a sense, was being transferred over to [TSCE] to handle".

185 Finally, we turn to some of the steps taken by TSCE. These received relatively briefer treatment in the parties' submissions on appeal. As we explain below, we conclude that ICOP has not shown that TSCE's noise mitigation measures were inadequate.

186 First, ICOP argued below that TSCE required ICOP to place its 1100kVA generator at an elevated position, which amplified how far noise would travel from the worksite. Moreover, the location was steeply sloped, which made the installation of noise enclosures challenging. We agree with TSCE's closing submissions below that it was not to blame for this. The location of the 1100kVA generator was not chosen by TSCE. Instead, it was ICOP who prepared the site utilisation plan and decided where the generator would be situated.

187 Secondly, TSCE accepts that it was responsible for undertaking noise mitigation measures *around the perimeter* of the worksite. In this connection, Dato Cheng's AEIC avers that after the Subcontract was terminated, TSCE installed more noise barriers; this showed that TSCE could have done more while the Subcontract was afoot. However, on cross-examination, Dato Cheng conceded that his reference to TSCE's installation of more noise barriers was to barriers installed before, and not after, the Subcontract was terminated. Dato Cheng then claimed he was referring to noise enclosures *around the equipment* on site, which contradicted his AEIC. There is therefore no factual basis for Dato Cheng's allegations on the witness stand.

188 Finally, ICOP says that TSCE should have installed a gate with insulation sheets at the worksite's main entrance. Dato Cheng had sent WhatsApp messages to TSCE containing this suggestion, claiming that it would reduce noise levels by two to three decibels. However, Dato Cheng conceded

under cross-examination that he did not have evidence to support the claimed reduction of two to three decibels. Mr Jung also gave evidence that there was insufficient space to install a gate and operationally, the area was near the muck pit where the waste disposal dump trucks would be entering in and going out frequently. On balance, we agree with TSCE's closing submissions below that the utility of a gate is unsubstantiated. It is also relevant that TSCE managed to conduct works on a 24-hour basis after the Subcontract's termination without having installed a gate.

189 In conclusion, we are satisfied that it was ICOP's failure to mitigate noise levels generated by its machinery, equipment and its work that led to the permit's cancellation. Accordingly, ICOP was responsible for the period of delay attributable to the permit's cancellation.

If ICOP is liable for delay damages, how long was the period of critical delay?

190 ICOP argues that, should *TSCE* be liable for delay, this ought to be for a period of 55.25 days rather than the 31.137 calendar days that the Judge found ICOP liable for (see Judgment at [103]–[104]). The Judge had favoured the calculations of TSCE's delay expert, Mr Samuel Widdowson ("Mr Widdowson"), over those of ICOP's delay expert, Mr Wall, because the latter's approach contained errors which affected its reliability.

191 Given our finding that *ICOP* is liable for delay, we do not understand ICOP to be making the point that it should be liable for 55.25 days of delay instead of 31.137 calendar days of delay. In any event, we agree with the Judge's decision to favour Mr Widdowson's calculations.

The expert evidence

192 There were two versions to Mr Wall's evidence. The first version from his expert report is a 60 working day or 70 calendar day estimation. This is the product of two components:

(a) First, the period of delay was 97 working days, this being the period from 10 September 2018 to 11 January 2018 (104 working days or 124 calendar days), less seven working days where ICOP was not working.

(b) Second, the time lost per day was 13.5 hours. The starting point was that ICOP intended to work for 22 hours a day, based on its method statement. Then, two figures were deducted: seven hours of time lost at night from the NEA restrictions, and 1.5 hours from the need to start up and shut down the equipment daily (which would have been avoided if works were running continuously on a round-the-clock basis).

(c) Multiplying 97 working days with 13.5 working hours per day gave rise to a loss of 1309.5 working hours. Based on 22 hours/day of work, this translated to 60 working days.

193 The second version of Mr Wall's evidence was introduced only during the witness conferencing. Mr Wall described his initial 70 calendar day estimate as an error, as the time lost per day was 8.5 hours (*ie*, 7 + 1.5 hours), and not 13.5 hours (*ie*, 22 – 7 – 1.5 hours) (which was the time available to ICOP to *work*). As such, he proposed a new figure of 54 calendar days. It is important to note, however, that this figure not merely corrected the calculation error, but added a *further period* of delay. The figure of 54 days was the *sum* of two sub-periods corresponding to 46.5 and 7.5 days of delay:

(a) The first sub-period related to the pipe jacking works, which were performed from 29 August 2018 to 15 January 2019, and was a delay of 46.5 days.

(b) The second sub-period concerned lost working hours during the MTBM recovery phase, from 15 January 2018 to 13 February 2019, and was a delay of 7.5 days.

194 Mr Ho objected to the second version of Mr Wall's evidence. The objection was that the second sub-period for MTBM recovery was not even identified as being a period of delay in Mr Wall's report. The Judge invited Mr Lee to justify why the second sub-period should be considered at this late stage, but Mr Lee was unable to do so, and the Judge accordingly ruled that the new assessment of 7.5 days was inadmissible.

195 The upshot of this is that Mr Wall assessed the delay to pipe jacking works to be 46.5 calendar days.

196 Mr Widdowson's assessment, which the Judge accepted, was 31.137 calendar days. The difference arises because Mr Widdowson did not regard Mr Wall's formulaic approach of applying 8.5 hours uniformly to each day to be realistic. Instead, Mr Widdowson's analysis was based on an examination of the daily pipe jacking shift reports, and factored in the actual delay caused to each day of works based on the contemporaneous records. He summarised the recorded downtime owing to the restricted working hours as follows:

Time Period	Assessment Period	Actual Delay in Period (Calendar Days)	Actual Causes of Critical Delay to the Sub-Contract Works
3.1.a	29-Aug-18 - 12-Sep-18	0.00	Working Hours Restriction (Noise)
3.1.b	13-Sep-18 - 18-Sep-18	1.20	Working Hours Restriction (Noise)
3.1.d	20-Sep-18 - 30-Sep-18	2.75	Working Hours Restriction (Noise)
3.1.e	01-Oct-18 - 05-Oct-18	1.25	Working Hours Restriction (Noise)
3.1.g	07-Oct-18 - 15-Oct-18	2.25	Working Hours Restriction (Noise)
3.1.i	17-Oct-18 - 26-Oct-18	2.50	Working Hours Restriction (Noise)
3.1.k	28-Oct-18 - 31-Oct-18	1.00	Working Hours Restriction (Noise)
3.1.l	01-Nov-18 - 05-Nov-18	1.25	Working Hours Restriction (Noise)
3.1.n	07-Nov-18 - 15-Nov-18	2.25	Working Hours Restriction (Noise)
3.1.o	16-Nov-18 - 30-Nov-18	3.75	Working Hours Restriction (Noise)
3.1.p	01-Dec-18 - 15-Dec-18	3.63	Working Hours Restriction (Noise)
3.1.q	16-Dec-18 - 24-Dec-18	2.25	Working Hours Restriction (Noise)
3.1.s	26-Dec-18 - 31-Dec-18	1.50	Working Hours Restriction (Noise)
3.1.u	02-Jan-19 - 09-Jan-19	2.00	Working Hours Restriction (Noise)
3.1.v	10-Jan-19 - 10-Jan-19	0.25	Working Hours Restriction (Noise)
3.1.w	11-Jan-19 - 15-Jan-19	1.25	Working Hours Restriction (Noise)
4.1	16-Jan-19 - 25-Jan-19	2.25	Working Hours Restriction (Noise)
4.2.a	26-Jan-19 - 13-Feb-19	2.28	Working Hours Restriction (Noise) and/or Shipping, Reassembly, Testing and Commissioning of the TBM
	Overall	**33.61**	**Working Hours Restriction (Noise)**

Time Period	Assessment Period	Actual Delay in Period (Calendar Days)	Actual Causes of Critical Delay to the Sub-Contract Works
3.1.a	29-Aug-18 - 12-Sep-18	0.00	Close Jobsite (Noise)
3.1.b	13-Sep-18 - 18-Sep-18	0.08	Close Jobsite (Noise)
3.1.d	20-Sep-18 - 30-Sep-18	0.21	Close Jobsite (Noise)
3.1.e	01-Oct-18 - 05-Oct-18	0.09	Close Jobsite (Noise)
3.1.g	07-Oct-18 - 15-Oct-18	0.13	Close Jobsite (Noise)
3.1.i	17-Oct-18 - 26-Oct-18	0.17	Close Jobsite (Noise)
3.1.k	28-Oct-18 - 31-Oct-18	0.08	Close Jobsite (Noise)
3.1.l	01-Nov-18 - 05-Nov-18	0.08	Close Jobsite (Noise)
3.1.n	07-Nov-18 - 15-Nov-18	0.18	Close Jobsite (Noise)
3.1.o	16-Nov-18 - 30-Nov-18	0.19	Close Jobsite (Noise)
3.1.p	01-Dec-18 - 15-Dec-18	0.22	Close Jobsite (Noise)
3.1.q	16-Dec-18 - 24-Dec-18	0.10	Close Jobsite (Noise)
3.1.s	26-Dec-18 - 31-Dec-18	0.14	Close Jobsite (Noise)
3.1.u	02-Jan-19 - 09-Jan-19	0.19	Close Jobsite (Noise)
3.1.v	10-Jan-19 - 10-Jan-19	0.01	Close Jobsite (Noise)
3.1.w	11-Jan-19 - 15-Jan-19	0.20	Close Jobsite (Noise)
	Overall	**2.05**	**Close Jobsite (Noise)**

197 It appears that Mr Widdowson's final figure of 31.137 calendar days was the sum of all the events taking place prior to the MTBM breakthrough, *ie*, up to 15 January 2019. Put differently, using the rounded-off figures above, this would be 33.61 – 2.25 – 2.28 + 2.05 = 31.13.

The parties' cases

198 On appeal, TSCE rightly notes that ICOP is not even adopting Mr Wall's analysis as such, but has arrived at a figure of 55.25 days between 7 September 2018 and 15 January 2019. This is also the figure advanced by ICOP in its closing submissions below. In essence, this is derived as follows:

(a) On the fall in productivity, ICOP adopts Mr Wall's figure that 8.5 hours were lost each day. However, it accepts that the intended working time per day was 20 hours, and not 22 hours. This translates to a higher drop in productivity of 42.5% (*ie*, 8.5 / 20 x 100%) when compared to what Mr Wall calculated.

(b) On the period affected by delay, it uses the period of 7 September 2018 (*ie*, when it says NEA prohibited night works) to 15 January 2019 (*ie*, the date of the MTBM breakthrough). This is a slightly shorter period than that used by the experts. It amounts to 130 calendar days.

(c) Multiplying 42.5% and 130 calendar days, ICOP obtains the figure of 55.25 calendar days.

199 On appeal, ICOP repeats some of the criticisms it made below about Mr Widdowson's approach. It submits that Mr Widdowson had underestimated ICOP's productivity losses. For instance, Mr Widdowson failed to account for four hours of float per day that ICOP could have used. First, it intended to work for 22 hours a day and not only 20, which added two hours of float. Secondly, it provisioned one-hour breaks in each shift, which added another two hours of float.

200 Moreover, ICOP submits that Mr Widdowson has disregarded the engineering realities of microtunnelling works. Ostensibly, what ICOP means by this is the efficiency losses that accrue from working on a single-shift basis. On ICOP's evidence, when works are paused, more time is needed to generate the required buoyancy for the pipes at the start of each shift before resuming works. ICOP also cautions against equating contract planning (which was Mr Widdowson's expertise) with retrospective delay analysis.

201 In response, TSCE submits that ICOP intended to work for 20 and not 22 hours per day, based on its SOC2, its method statement, and its final quotation. The figure of 22 hours a day artificially inflates the time lost because it already includes the two hours allocated for breaks. The Judge noted as much below in finding that the Subcontract only required TSCE to obtain a 20-hour working permit (Judgment at [103]).

202 As for the point that Mr Widdowson disregards engineering realities, this is a red herring. Mr Widdowson went through all the relevant daily records to formulate a precise assessment. He also has extensive experience with issues of construction delay and disruption.

Our decision

203 At the outset, it is important for us to reiterate that an appellate court would generally be slow to criticise a trial court's findings on expert evidence, unless it entertains doubts as to whether the evidence has been satisfactorily sifted or assessed by the trial court (*iVenture Card Ltd and others v Big Bus Singapore City Sightseeing Pte Ltd and others* [2022] 1 SLR 302 at [115]).

204 In our judgment, ICOP has not provided any reason for disturbing the Judge's analysis. Rather than identifying where the Judge erred, it merely restates a case it has already made and that was already rejected below.

205 We do not think the Judge was wrong in preferring Mr Widdowson's calculations. His methodology has more to commend than Mr Wall's. Mr Wall's approach essentially applies a crude approximation of 8.5 hours of lost productivity uniformly across all days of delay. While this may be sufficient and possibly even the most appropriate approach in some cases, it is not so here. Mr Widdowson has undertaken an analysis that is informed by a granular examination of pipe jacking shift reports, which are divided into 15-minute blocks, to derive the delay caused over each sub-period. It accounts for the actual stoppages due to noise restrictions within each 15-hour daily working period. This also addresses ICOP's argument on float: it is one matter to debate over planned float, but it is more critical to look at whether ICOP was consuming its float and using the breaks for catch-up work.

206 As for the 1.5 hours that Mr Wall attributed to starting up and shutting down each day, we agree with Mr Widdowson's explanation that: (a) the start-up time would have overlapped with the toolbox talk required at the start of each day, and so this time would have to be spent anyway; and (b) the shut down time had been accounted for through his daily review of the shift reports.

207 Finally, we do not think that ICOP's reformulated case of 55.25 days should be given much weight. This being a matter for which expert evidence was sought, it should have been tested with the experts, but was not.

208 For all these reasons, we dismiss ICOP's appeal in respect of the noise restriction issue, save for the substitution of liquidated damages with general

damages quantified at $14,655.69 for the 31.137 calendar days of delay, which has been explained under Issue 5 (at [131(b)] above).

Issue 7: ICOP's other delay claims

209 At paras 2(g) to 2(j) of its Notice of Appeal, ICOP appeals against the Judge's findings that TSCE did not cause delay to ICOP's works by:

(a) failing to supply a sufficient number of pipes (see [105]–[115] of the Judgment, and para 2(g) of the Notice of Appeal);

(b) supplying poor-quality pipes (see [116]–[117] of the Judgment, and para 2(h) of the Notice of Appeal);

(c) failing to timeously carry out waste disposal (see [118] of the Judgment, and para 2(i) of the Notice of Appeal); and

(d) insisting on an unplanned cutterhead inspection (see [119] of the Judgment, and para 2(j) of the Notice of Appeal).

210 ICOP's pleaded case was that TSCE had caused 158 working days of delay between the periods of 24 February 2018 to 13 August 2018, and 7 September 2018 to 14 January 2019. In its SOC2, ICOP averred that the delays were caused by the worksite readiness and handover issue, the Authorities' Approvals issue, the headwall issue, the noise restriction issue and four other delay events (the "Four Delay Events"), namely that:

(a) TSCE failed to provide a sufficient supply of jacking pipes at the worksite (the "insufficient pipes issue");

(b) TSCE supplied jacking pipes that were of unacceptable quality in relation to the specifications of the Subcontract;

(c) TSCE failed to provide adequate water treatment systems at the worksite and processes for the loading, removal and transportation of waste material generated from the Project away from the worksite; and

(d) TSCE instructed ICOP to conduct an unplanned test and cutterhead inspection of the MTBM when the MTBM was in the process of tunnelling from Shaft P5-2 to Shaft P5-1.

211 When requested by TSCE to clarify the duration of critical delay caused by each delay event, ICOP stated in its further and better particulars that:

> a. The durations are set out below:
>
> i. In relation to paragraph 61.a. of SOC1 [*ie*, the slow worksite handover issue], the delay is for a period of 23 days between 24 February 2018 and 29 March 2018, and 13 further days between 18 April 2018 and 1 August 2018;
>
> ii. In relation to paragraph 61.c. of SOC1 [*ie*, the Authorities' Approvals issue], the delay is for a period of 27 days between 23 May 2018 and 25 June 2018.
>
> iii. In relation to paragraph 61.d. of SOC1 [*ie,* the headwall issue], the delay is for a period of 38 days between 26 June 2018 and 13 August 2018; and
>
> iv. In relation to paragraph 61.f. of SOC1 [*ie*, the noise restriction issue], the delay is for a period of 57 days between 7 September 2018 and 14 January 2019.

212 As seen from the above, ICOP did not specify any periods of delay for the Four Delay Events. More importantly, the durations of delays specified by ICOP for the worksite readiness and handover issue, the Authorities' Approvals issue, the headwall issue, and the noise restriction issue amounted to 158 days, which was the total amount of delay pleaded by ICOP in its SOC2. This

prompted the Judge to make the following findings at [108] and [112] of the Judgment:

> 108 I accept TSCE's general submission. As stated at [46]–[47] above, parties in technical disputes should – in my view – be held closely to their pleadings. The natural way to read ICOP's [Statement of Claim], alongside the further and better particulars it provided, is that *no days of delays* arose from the insufficient pipes, poor-quality pipes, waste disposal and unplanned cutterhead inspection issues. Its claim in respect of [these issues] can thus be dismissed on this basis.
>
> …
>
> 112 … ICOP chose to ascribe specific days of its total 158-working day claim, to the worksite readiness and handover issue, the Authorities' Approvals issue, the headwall issue and the noise restriction issue. By doing so, it left no room for the other four issues it raised in respect of its delay claim, which was not subsequently amended. ICOP did not need to take this course of action; but, since it did, it is bound by its approach.
>
> [emphasis in original]

213 On appeal, ICOP argues that even if no specific number of days was attributed to the Four Delay Events in ICOP's further and better particulars, the Four Delay Events have been pleaded in its SOC2. ICOP further argued that when it sought the full particulars of the 266 calendar days of delay pleaded by TSCE in its Defence and Counterclaim, TSCE's own position was that the quantification of delay is a matter of submission and/or evidence and not pleadings.

214 This argument was raised before the Judge and, in our view, rightly rejected. The Judge found that ICOP and TSCE adopted different approaches in their pleadings and were bound by their respective approaches. TSCE's less particularised approach, which attributed a global 266 calendar day delay to seven delay events "bears the ordinary risk from mounting what is typically referred to as a 'global' or 'composite' delay claim" and comes with its own

evidentiary challenges (Judgment at [113]). In contrast, ICOP chose to ascribe specific days to its total 158-working day claim to the worksite readiness and handover issue, the Authorities' Approvals issue, the headwall issue, and the noise restriction issue. It did not need to take this course of action but since it did, it was bound by its approach (Judgment at [112]).

215 We agree with the Judge's reasoning on this point. As stated earlier (at [45]), parties in technical disputes such as the present case should be held closely to their pleadings. Since ICOP had chosen to adopt an itemised treatment of each head of delay, it must ensure that the delay caused by each pleaded delay event adds up to the total days of delay it claims against TSCE. By attributing the 158 working days of delay exclusively to the worksite readiness and handover issue, the Authorities' Approvals issue, the headwall issue, and the noise restriction issue, ICOP left no room for the Four Delay Events. The logical inference from ICOP's pleading is that no days of delay resulted from the Four Delay Events.

216 ICOP also argues on appeal that it should be entitled to claim against TSCE for the delays caused by the Four Delay Events because TSCE was not taken by surprise as the parties were already in dispute as to whether to include the Four Delay Events in the draft Agreed List of Issues for Expert Determination as early as the pre-trial conference on 24 February 2021.

217 We disagree with this argument. Even if the TSCE was aware of the dispute over the Four Delay Events, that is not to say that TSCE was aware that ICOP intended to rely on the Four Delay Events to claim for additional days of delay in addition to the 158 days of delay claimed in its SOC2. In fact, for the insufficient pipe issue, ICOP seeks to claim for delays between 24 and 25 January 2019, which falls completely outside its pleaded case for delays

"between the periods of 24 February 2018 to 13 August 2018, and 7 September 2018 to 14 January 2019". ICOP was free to seek permission from the court to amend its SOC2 if it wished to claim for the additional days of delay caused by the Four Delay Events, but it did not do so. Its reliance on the Four Delay Events to claim for additional delays in addition to the 158 days of delay at this stage is an impermissible deviation from its pleaded case.

218 Consequently, we dismiss ICOP's appeal in relation to the Four Delay Events.

Issue 8: TSCE's delay counterclaim for slow pipe jacking

The parties' cases

219 At para 2(k) of its Notice of Appeal, ICOP appeals against the Judge's finding that "ICOP is to pay TSCE S$39,090.60 for causing 22.86 days of critical delay on the basis that its pipe jacking works were slow (see para [120] – [126] of the Judgment)."

220 ICOP's appeal on this issue is a narrow one. It argues that the 22.86 days of delay were not caused because its pipe jacking works were slow, but as a result of its inability to perform pipe jacking works on a round-the-clock basis (we had considered this under Issue 6). TSCE's response is essentially that ICOP has failed to explain how the Judge's findings would be affected if we were to find in ICOP's favour on Issue 6.

Our decision

221 We dismiss ICOP's appeal on this issue.

222 The Judge accepted TSCE's evidence that ICOP's pipe jacking works – even accounting for the decrease in productivity caused by the noise restrictions – were slow (Judgment at [120]). However, instead of adopting Mr Widdowson's figure of 28.8 days of delay, he held that ICOP was liable for 22.86 working days of delay (Judgment at [126]):

> 126 In my view, ICOP should be held liable for its 'slowness' in carrying out the pipe jacking works only to the extent that it exceeded the amount of time it would have taken in the ordinary course, had there been no delay. That is, 120 working days [*ie*, the number of days ICOP actually took] less 66 working days [*ie*, the number of days permitted for pipejacking in the applicable baseline programme], less the 31.137 days of critical delay already determined in TSCE's favour in respect of the noise restriction issue. I do not give any credit to ICOP in respect of the insufficient pipes issue, poor-quality pipes issue, and unplanned cutterhead inspection issue for the reasons stated at [105]–[117] and [119] above. This amounts to 22.86 working days. Accordingly, I award TSCE liquidated damages of 22.86 × 1,710, ie, $39,090.60.

223 We see no reason to disturb the Judge's finding that ICOP's pipejacking was slow. Given that finding, ICOP's case that the slow pipejacking was caused by its inability to work two shifts due to noise restrictions can no longer hold good. It is critical to note that the Judge had *already* factored in the effect of the noise restrictions on ICOP's productivity, by deducting the 31.137 days of critical delay he had determined in TSCE's favour for that issue. The resulting 22.86 working days of delay are thus solely attributable to ICOP's reduced productivity, quite apart from the noise restrictions. There was no double counting. ICOP has not suggested that the Judge's methodology was incorrect. Therefore, there is no basis for disturbing the Judge's decision, save for the substitution of his decision to award liquidated damages with an award of general damages (which we have addressed at [131(c)] above).

Issue 9: TSCE's delay counterclaim for slow demobilisation

The parties' cases

224 At para 2(l) of its Notice of Appeal, ICOP appeals against the Judge's finding that "ICOP is to pay TSCE S$35,910 for causing 21 days of critical delay in relation to its demobilisation from the 2nd Drive (see [127] – [130] of the Judgment)."

225 ICOP's appeal on this issue is, likewise, a narrow one. It argues that the 21 days of critical delay arose not from its rate of demobilisation, but its inability to perform pipe jacking works on a round-the-clock basis, TSCE's failure to build Shaft P5-1 to specification, and the poor quality pipes provided to ICOP. As with the preceding issue, TSCE's response is essentially that ICOP has failed to explain how the Judge's findings would be affected if we were to find in ICOP's favour on Issue 6.

Our decision

226 We dismiss ICOP's appeal on this point.

227 The 21 days comprise three sub-delays from the period of 16 January to 13 March 2019, after ICOP's pipe jacking works for Drive 2 had been completed (Judgment at [127]):

(a) slow removal of the MTBM, which took nine working days;

(b) completion of remaining pipe jacking and removal of intermediate jacking stations, which took six working days; and

(c) turnover of Shaft P5-1, which took six working days.

228 Importantly, the Judge found (at [128]–[130] of the Judgment) that:

(a) ICOP accepted that the first sub-delay for slow removal of the MTBM would be attributable to TSCE only if TSCE were liable for defects in Shaft P5-1; and

(b) ICOP "does not seriously dispute liability" in respect of the other two sub-delays.

229 On appeal, ICOP has not argued that these observations were made in error.

230 Thus, on the first sub-delay (*ie*, the slow removal of the MTBM), it follows from our decision that TSCE is not liable for defects in Shaft P5-1 (see [85] above) that ICOP remains liable for this sub-delay.

231 As to the second and third sub-delays, ICOP argued below that credit should be given for the decrease in productivity caused by the noise restrictions and TSCE's supply of poor-quality pipes.

232 In respect of the former, we have found above that ICOP is liable for the delay arising from the decreased productivity caused by the noise restrictions (see [208] above). It follows that TSCE remains entitled to damages under its counterclaim.

233 On the poor-quality pipes, given that we have likewise dismissed ICOP's appeal on this point above (see [218] above), no credit should be given for this. In any case, we agree with the Judge's observation that ICOP's submission on this point is a bare one that does not guide the court in deciding how much credit should be given (even if the court were minded to grant any):

> Finally, ICOP's demobilisation from Shaft P5-1 and handover of Shaft P5-2 was also affected by the defective and leaking pipes which had been provided by TSCE.

234 On the basis of the foregoing, ICOP's appeal on these points fails, save only that the award of liquidated damages is substituted with an award of general damages quantified at $10,956.60, as explained at [131(d)] above.

Issue 10: Reasonable time for completion

235 This point was not raised in ICOP's Notice of Appeal but features as a discrete section in its Appellant's Case (section DV, paras 67 to 70). ICOP argues that the Judge erred in not considering what was a reasonable time to complete Drive 2. ICOP relies on the case of *Crescendas (HC)* for the proposition that in the absence of an extension of time clause, an act of prevention by the contractor would set time "at large" and the subcontractor's obligation is to complete the project within a reasonable time (*Crescendas (HC)* at [353]). This is a settled and very well-known principle of construction law.

236 In determining what is a reasonable time for completion, we can draw guidance from two cases. In *Fongsoon Engineering (S) Pte Ltd v Kensteel Engineering Pte Ltd* [2011] SGHC 82 ("*Fongsoon*"), the court held at [25]:

> Even though time for completion is at large, the contractor has to complete the works within a reasonable period. If the contractor fails to do so, the employer will be able to sue to recover general damages resulting from the contractor's breach (see per Salmon LJ in *Peak Construction (Liverpool) Ltd v McKinney Foundations Ltd* (1970) 1 BLR 114 at 121). *What constitutes a reasonable time is a question of fact. As a guide, how the courts in some cases have determined the period of reasonable time is by simply adding the effect of the employer's delay to the contractual deadline. This is usually regarded as a fair method because it is able to strike an appropriate balance between not allowing the employer to take advantage of its own fault, and not giving the contractor any other additional time other than that caused by the employer's delay* (see generally

> *Balfour Beatty Construction Ltd v London Borough of Lambeth* [2002] 1 BLR 288). [emphasis added]

237 In *Crescendas (HC)*, the court affirmed the principle that there is a need to strike an appropriate balance between not allowing the employer to take advantage of its own fault, and not giving the contractor any additional time other than that caused by the employer's delay (*Crescendas (HC)* at [357(b)]). The court added that the *Fongsoon* method of determining reasonable time by adding the employer's delay to the contractual completion time is meant to be a guide (*Cresdendas (HC)* at [357(c)]). The court should undertake a holistic approach in each case taking into account the actual conduct of the parties that caused the delay. This will require the court to consider all the facts, including whether the parties' initial agreed time frame was reasonable, the experts' opinions of the parties on the timelines in the light of the actual scope of work involved, and the actual delay caused by the employer (*Crescendas (HC)* at [360]).

238 In the present case, although the Judge did not expressly state his finding on what the reasonable time was for ICOP to complete the Project, he did make findings on TSCE and ICOP's respective liabilities for each individual delay event before ordering TSCE and ICOP to pay each other damages for the delay that they had each caused to the completion of the Project. This is evident from the Judgment (at [135] to [136]). In so doing, the Judge was, in effect, applying the *Fongsoon method* by adding the effect of TSCE's delay to the contractual deadline for Drive 2. While the Appellant's Case argues that the Judge should not have taken an "arithmetical exercise in which TSCE's delays [are] added to the date of completion", ICOP does not go on to explain *what other factors* relevant to determining reasonable time the Judge should have or has failed to take into account *in this case* which are not already addressed in one or more of the heads of delay discussed in the Judgment. Therefore, we reject ICOP's

contentions that the Judge failed to consider the issue of reasonable time for completion.

239 ICOP then argues that the 17 August 2018 Programme should be used in ascertaining the reasonable time for completion given that it was agreed upon by the parties. This is because the 17 August 2018 Programme contemplates a later completion date than the 8 January 2018 Programme (*ie*, the applicable baseline programme: see [96]–[97] above), which would effectively allow ICOP more time to complete Drive 2. ICOP further argues that it should be entitled to additional time for completion for acts of prevention by TSCE that occurred after 17 August 2018.

240 We disagree with ICOP's contentions. We are of the view that the 17 August 2018 Programme should not be used in ascertaining the reasonable time for completion. Contrary to ICOP's submission, the Judge had rightly found that TSCE did not expressly accept the 17 August 2018 Programme as the revised timeline between the parties. TSCE's response to the 17 August 2018 Programme issued by ICOP was that it had "generally no objections", which the Judge found to be insufficient to amount to an agreement (see Judgment at [62]).

241 More importantly, as mentioned above (at [96]), the Judge found that the applicable baseline programme is the 8 January 2018 Programme, and ICOP has not appealed against that finding. Furthermore, as noted above, ICOP's own delay expert has opined that the 17 August 2018 Programme is inappropriate to be used as a baseline programme because it contains as-built data. Particularly, the 17 August 2018 Programme contains additional items in the timeline, such as "Entrance Headwall Pressure Leak Test – 19 days", and "Retrieve machine from Shaft P5-2 and remove entrance Ring for TSCE to rebuild new Entrance

Wall – 3 days". These items pertain to the parties' dispute over the construction of the headwall, which we have upheld in TSCE's favour (see above at [49]). If the completion date in the 17 August 2018 Programme is used as the starting point in determining the reasonable time of completion, this would effectively mean that the headwall issue was resolved in ICOP's favour, since the delays arising from the headwall issue would have been accounted for in the completion date provided for in the 17 August 2018 Programme, which will directly contradict our findings for the headwall issue. Therefore, we disagree with ICOP's contention that the 17 August 2018 Programme should be used in computing the reasonable time for completion of Drive 2.

242 Consequently, we dismiss ICOP's appeal on this issue. The Judge had applied the approach in *Fongsoon* (albeit without saying so and indirectly) in determining the reasonable time for completion, by adding up each party's respective liabilities for the individual delay events and setting them off against one another.

Issue 11: Termination

243 At para 2(m) of its Notice of Appeal, ICOP appeals against the Judge's finding that "ICOP did not legally terminate the Subcontract on 13 March 2019 (see [139] – [143] of the Judgment)".

244 ICOP's pleaded case relies exclusively on the contractual termination clause. This is cl 6 of Appendix F of the LOA ("Clause 6"):

> **6. Payment conditions**
>
> Work progress has to be stated every month in a document called Validated Monthly Progress Report (VMPR). VMPR has to be signed by the parties within the first 15 days of the following month. ICOP will prepare the invoices on a monthly base accordingly or to be agreed upon contract award. The payment

> could also be form as accordance to Work done fully remeasureable (Shaft inner wall to wall). The invoice has to be paid after 30 days from the invoice date.
>
> - 10% Advance payment 30 days after signing the final contract (To be discussed)
> - 87% monthly based on VMPR (To be discussed)
> - 3% as Retention by receipt of completion certificate (To be discussed)
>
> *In case ICOP has fulfilled its obligation under the contract and can for reasons which are beyond the control of ICOP not start or continue with the work in a timely manner, ICOP shall have the right to terminate the work and rendering of services.* TSC has to fully reimburse ICOP for all its cost for bringing, repatriating and maintain all the equipment and staff. All payments shall be made in SGD given the above payment schedule[.] The payment schedule is structured to be cash neutral, hence no financing costs are assumed in the above prices.
>
> [emphasis added in italics; bold in original]

The decision below

245 The Judge noted that ICOP asserted two alternative bases that prevented it from "continu[ing] with the work in a timely manner" (Judgment at [140]):

(a) the NEA's direction to stop work at night; and

(b) TSCE's delays in preparing for Drive 3, namely completing Shaft P5-3 (the receiving shaft for Drive 3) and reconstructing the headwall and thrust wall for Shaft P5-2 (the launching shaft for Drive 3).

246 The Judge rejected both of ICOP's bases for termination and found that ICOP was not entitled to terminate the Subcontract and is liable for wrongful termination (with the quantum of damages reserved to be determined at a second tranche of the trial). The first basis failed given the Judge's decision on the noise restriction issue. The second basis failed because the Subcontract Works had earlier been substantially delayed by ICOP's own actions, and "ICOP ha[d] not

put forth anything to show that TSCE's actions following Drive 2 somehow further prevented the Subcontract works from being continued in a timely manner". Further, and in any event, ICOP had not "fulfilled its obligation under the contract" (another requirement of clause 6), given the various delays attributable to ICOP (Judgment at [141] to [143]).

247 The issues on appeal thus revolve around two cumulative requirements of Clause 6, which we term the Performance Requirement and Prevention Requirement respectively:

(a) Performance Requirement: "ICOP has fulfilled its obligation under the contract".

(b) Prevention Requirement: "ICOP … can for reasons which are beyond the control of ICOP not start or continue with the work in a timely manner".

248 Before we address each Requirement in turn, we first address the new reasons for termination that ICOP seems to be relying on for the first time on appeal.

New bases for termination

The parties' cases

249 TSCE argues that ICOP's case on termination has evolved impermissibly on appeal, in two ways.

250 First, ICOP relies on an additional ground for termination: that TSCE had repudiated the Subcontract by deliberately and wrongfully withholding certified payments.

251 Secondly, ICOP raises additional matters to justify termination. It argues that it had "no option" but to terminate the Subcontract due to TSCE's unreasonable behaviour, which includes:

(a) its refusal to accept any blame in a March 2019 meeting for reduced productivity;

(b) its decision to send on 6 March 2019 what ICOP describes as a letter of demand for liquidated damages;

(c) its refusal to take further steps to mitigate noise;

(d) its failure to secure permits for ICOP to work on a 24-hour basis; and

(e) its failure to provide, despite promising to, the Primavera P5 programme (from the main contract) which would have indicated the PUB's agreed completion date for the remaining works in Drives 3 and 4 (and thus any catch-up works that ICOP had to perform).

252 TSCE says that these amount to an *evolution* of ICOP's case because they were not pleaded below, and in relation to the additional ground of termination that ICOP has raised (above at [250]), not raised in submissions below either.

253 TSCE submits that this evolution is impermissible and amounts to an abuse of process, because ICOP is effectively mounting a new *case* on appeal, in the sense described in *Wei Ho-Hung v Lyu Jun* [2022] 2 SLR 1066 at [33]. At trial, ICOP's pleaded case was only that it had fulfilled its obligations under the Subcontract and was entitled to terminate because of: (a) TSCE's failure to obtain the necessary permits for round-the-clock work; and (b) TSCE's failure

to complete the construction of Shaft P5-3 and reconstruction of Shaft P5-2's headwall and thrust wall, which rendered ICOP unable to commence work for Drive 3.

254 Even if this were not a new *case* but a new *point* on appeal, ICOP has not shown that permission ought to be granted for this point to be introduced. In any case, it should not be permitted to pursue this new point as: (a) ICOP has not pleaded which non-payments gave rise to a right to terminate, when these would be material facts; (b) the Appellant's Case does not identify these non-payments either; and (c) TSCE would be prejudiced as it would not have had the opportunity to address the reasons behind each instance of alleged non-payment.

255 In its Appellant's Reply, ICOP responds that TSCE would suffer little to no prejudice from the additional ground for termination based on the withholding of payments being raised on appeal. TSCE's factual witnesses have been cross-examined on this point at trial, and the Judge found that TSCE persistently refused to pay ICOP to place untoward commercial pressure on the latter. The conclusion that this entitles ICOP to terminate the Subcontract is predicated on a point of law, based on *Diamond Glass Enterprise Pte Ltd v Zhong Kai Construction Co Pte Ltd* [2022] SGHC(A) 44 at [54], a case decided after the trial.

Our decision

256 In our judgment, even if ICOP were permitted to ventilate these arguments on appeal, they would not assist its case on termination.

257 As a starting point, ICOP never based its termination on a repudiatory breach by TSCE. Instead, ICOP's pleaded case based its entitlement to

terminate on Clause 6 (see SOC2 at paras 60 and 67 to 69). This is what *RDC Concrete Pte Ltd v Sato Kogyo (S) Pte Ltd and another appeal* [2007] 4 SLR(R) 413 at [91] ("*RDC Concrete"*) terms "Situation 1" termination, *ie*, a "situation where the contract clearly and unambiguously states that, in the event of a certain event of events occurring, the innocent party will be entitled to terminate the contract".

258 The pleaded basis of ICOP's right to terminate the Subcontract was similarly reflected in ICOP's contemporaneous position when it purported to terminate the Subcontract. When it first gave notice of its intention to terminate by way of a letter dated 27 February 2019, it relied on "clause 6 read with clauses 4.1(p) and (s) of Appendix F" as its basis for potential termination. When it formally purported to terminate the Subcontract on 13 March 2019, its letter referred to the "long-standing issue" of noise and the parties' failure to reach a satisfactory path on the same. It also referred to its inability to commence work for Drive 3 as TSCE's workers continued to remain and work on Shafts P5-2 and P5-3. It thus framed its decision to terminate on the language of Clause 6: it stressed that it had fulfilled its obligations under the Subcontract, but had been unable to continue the work in a timely manner for reasons beyond its control.

259 Furthermore, it is unclear that any non-payments were of such severity as to amount to a repudiation of the Subcontract. The Appellant's Reply describes the Judge as having made "findings that TSCE persistently refused to make payment to ICOP for work done in order to place untoward commercial pressure on ICOP". As such, ICOP says that all the court needs to do, in essence, is to draw the legal conclusion that these factual findings would entitle ICOP to terminate. This submission is misleading. While the Judge awarded ICOP sums owing under interim progress claims made in December 2018 to January 2019

(see Judgment at [49] to [51]), there was no finding that these were "persistent refus[als]" or that this was done to "place untoward commercial pressure on ICOP". And while the Appellant's Reply suggests that TSCE's factual witnesses have been cross-examined "on this", ICOP has not pointed to any parts of the transcript showing that the breach was of such a nature or extent that would justify termination.

260 This being the case, ICOP's argument that it can justify its termination on non-payment by TSCE must fail. Non-payment could conceivably support a case of termination based on renunciation or repudiation, but that was not ICOP's pleaded or contemporaneous position, and the necessary evidence for such a conclusion is lacking. The material question is whether TSCE's non-payments rendered ICOP unable to "continue with the work in a timely manner" as provided in Clause 6. In our judgment, they did not. ICOP has not even suggested that the non-payments led to cash flow difficulties that impeded later works.

261 As to the additional matters described above (at [251]), in fairness to ICOP, it does not appear to be relying on these matters as a *legal argument* as such; instead, it sets them out as part of the factual background for its case on appeal. In any case, they are a non-starter. Most of the points bear no logical relation to ICOP's inability to continue works under the Prevention Requirement, such as TSCE's purported refusal to accept blame, its issuance of a letter of demand, and its failure to provide the Primavera P5 programme. The points concerning noise restrictions are also a non-starter, given our conclusions above on Issue 6.

262 In our view, ICOP is not entitled to raise these points on appeal as they fall outside its pleaded case and were not raised below. Even accepting that ICOP could raise these points on appeal, there is no merit in these points.

The Performance Requirement in Clause 6

263 We turn to the grounds for termination that ICOP *did* raise below. To recapitulate, Clause 6 contains two requirements, and the first (*ie*, the Performance Requirement) requires that "ICOP has fulfilled its obligation under the contract". The Judge found that it had not done so, due to its delays (Judgment at [142]). We agree with the Judge.

264 The dispute centres over whether the phrase "ICOP has fulfilled its obligation under the contract" refers to ICOP fulfilling *all* its obligations, as is TSCE's interpretation, or only *some* obligations, as is ICOP's position.

The parties' cases

265 ICOP submits that the Performance Requirement is "prospective looking in nature", in that if ICOP had completed the earlier drives, any prior delays caused then (particularly *de minimis* delays or delays that no longer impact the Project's critical path) should not deprive it of its right to terminate. This is supported by the following:

(a) commercial sense;

(b) the conjunctive nature of both requirements (*ie*, it must be read alongside the words "and can … not start or continue the work" under the Prevention Requirement);

(c) the proposition that a temporary slowdown in the progress of works will not invariably be viewed as contractual repudiation, as stated in *Jia Min Building Construction Pte Ltd v Ann Lee Pte Ltd* [2004] 3 SLR(R) 288 ("*Jia Min*") at [46];

(d) the fact that TSCE inserted a liquidated damages clause in the Subcontract, which shows that it envisaged the costs incurred due to ICOP's delays to be recovered through damages and not a deprivation of its right to terminate (citing *Chattan Developments Ltd v Reigill Civil Engineering Contractors Ltd* [2007] EWHC 305 (TCC) ("*Chattan*") and *Biffa Waste Services Ltd v Maschinenfabrik Ernst Hese GmbH* [2008] EWHC 6 (TCC) ("*Biffa Waste*") at [113]–[119]); and

(e) the argument that ICOP's delays do not disentitle it of its right of contractual termination, because: (i) its breaches were not continuing breaches of obligations in the nature of a condition precedent (*Alliance Concrete Singapore Pte Ltd v Comfort Resources Pte Ltd* [2009] 4 SLR(R) 602 ("*Alliance Concrete*") at [46]), and (ii) there was no nexus between ICOP's non-compliance with the Subcontract's terms and its repudiation (*Jia Min* at [65]).

266 In applying this interpretation, ICOP argues that it "fulfilled its obligation" notwithstanding its delays. It fulfilled its microtunnelling obligations in relation to Drives 1 and 2 by the time it terminated the Subcontract on 13 March 2019; it had handed over Shaft P5-2 to TSCE on 16 February 2019.

267 TSCE first takes issue with ICOP's reliance on the propositions from *Jia Min* and *Alliance Concrete*, because these were not placed before the Judge. In

any case, it argues that they are distinguishable from the present case which concerns contractual termination under Situation 1 of *RDC Concrete*.

268 TSCE argues that ICOP's "prospective looking" interpretation is without merit and would render the Performance Requirement meaningless. ICOP's obligations to complete its works must be read together with the periods within which such works were to be completed; otherwise, programmes and agreed completion dates would be pointless. ICOP itself recognises this, having pleaded that time was of the essence. TSCE also contends that there is no room in the express wording of the Performance Requirement to read in specific qualifications for delays which are *de minimis* or which no longer impact the critical path, and in any event, ICOP's breaches were serious and not *de minimis*. It says an option to terminate must be construed strictly, with strict compliance with conditions stated therein. In this regard, Clause 6 plainly and literally requires ICOP to fulfil all its obligations. ICOP had pleaded as much, when it averred in its SOC2 that it "had fulfilled *all* of its other obligations under the Subcontract" [emphasis added].

Our decision

269 We understand ICOP to be mounting its case on two levels. The first is at a broader level in that delays would *generally* not amount to a failure to "fulfil its obligation under the contract" under Clause 6. We term this the "Any Delay argument". The second, narrower argument is that, *assessed at the time of termination*, its delays had become *de minimis* or no longer affected the critical path, and parties did not intend for such delays to fall within Clause 6. We term this the "Spent Delay argument".

270 We structure our decision on the Performance Requirement around three broad headings:

(a) TSCE's objection to ICOP's reliance on the propositions from *Jia Min* and *Alliance Concrete*;

(b) the merits of the Any Delay argument; and

(c) the merits of the Spent Delay argument.

(1) The propositions in *Jia Min* and *Alliance Concrete*

271 We first deal with TSCE's objection that the propositions in *Jia Min* and *Alliance Concrete* were raised for the first time. This is not the case. Whereas the case authorities have been cited for the first time, the overarching proposition that ICOP should not be precluded from terminating due to past or "spent" breaches is not new. In its written reply submissions below, ICOP had challenged TSCE's interpretation of the Performance Requirement as being "legally unsustainable and uncommercial" as "it would mean that any breach by ICOP in the distant past entitles it to termination thereafter". In our view, *Alliance Concrete* and *Jia Min* merely serve to substantiate a point that had already made below.

272 However, *Alliance Concrete* does little to assist ICOP. *Alliance Concrete* addresses situations where both parties are in breach and sets out the pre-requisites that must be satisfied before the party seeking to terminate the contract can be said to have lost its right to do so. *Alliance Concrete* was not dealing with termination under an *RDC Concrete* Situation 1 case which is ICOP's pleaded case. The observation in *Alliance Concrete* at [46] comes from

Jet Holding Ltd v Cooper Cameron (Singapore) Pte Ltd [2006] 3 SLR(R) 769 ("*Jet Holding*") at [99], and states that:

> … A breach by A would only assist B if it was still continuing when A purported to treat B as having repudiated the contract and if the effect of A's subsisting breach was such as to preclude A from claiming that B had committed a repudiatory breach. In other words, B would have to show that A, being in breach of an obligation in the nature of a condition precedent, was therefore not entitled to rely on B's breach as a repudiation.

273 However, the point is that even if ICOP succeeds in showing that it is not "preclude[d] … from claiming that [TSCE] had committed a repudiatory breach", this does not address the anterior question of whether it has "fulfilled its obligation under the contract" as required by the Performance Requirement in Clause 6. This is consistent with *Jet Holding* at [99], which precedes the quote above with this sentence: "*If A is entitled to treat B as having wrongfully repudiated the contract between them* and does so, *then* it does not avail B to point to A's past breaches of contract, whatever their nature" [emphasis added]. Hence, ICOP must first establish its entitlement to terminate. The issue was never whether ICOP had lost its right to terminate at general law. The issue was whether it has satisfied the requirements of Clause 6, including whether it has "fulfilled its obligation under the Contract." These are distinct inquiries.

274 As such, neither *Alliance Concrete* nor, as we shall see below, *Jia Min,* is instructive in relation to the application of Clause 6.

(2) The Any Delay argument

275 In relation to the Any Delay argument, ICOP relies first on *Jia Min* at [46] for the proposition that a temporary slowdown in the progress of works will not invariably be viewed as contractual repudiation (see [265] above).

276 The first difficulty is that this proposition in *Jia Min* concerns repudiation, and not termination under Situation 1 of *RDC Concrete*, much less the specific requirements of Clause 6. In *Jia Min*, the court applied the well-recognised rule that delay in making progress payments does not ordinarily amount to a repudiation. However, the court was quick to add that: "There will, however, be instances where a failure to pay can be grave enough to amount to a repudiation. One illustration is where non-payment is accompanied by the clear evincing of an intention not to make further payments. Another is where payment is made subject to conditions that would amount to the re-writing of the terms of the contract" (see *Jia Min* at [45]). The need, therefore, to examine the facts of each case carefully to ascertain whether these legal principles are applicable or not is patent. In this case, there were significant delay events that were caused by ICOP. These include the headwall issue, the noise restrictions issue, ICOP's slow pipe jacking, and ICOP's slow demobilisation. As ICOP's work commenced, these events followed one after the other, cascading down to adversely affect the next construction activity and exacerbating the problematic progress at site and increasing the delays. Each delay was either because ICOP insisted on something it was not entitled to insist upon, or because ICOP failed to comply with its contractual obligations or making unwarranted complaints against TSCE which were, in the event, dismissed by the Judge and us. Weighing all these factors in mind, including the delay arising from the late Authorities' Approvals attributable to TSCE, it cannot be said that ICOP had fulfilled its obligations under the Subcontract.

277 As to the argument that damages were intended as the sole remedy on the basis that the Subcontract includes a liquidated damages clause (at [265(d)] above), this also cannot be correct. In the first place, Clause 6 is not a "remedy" for TSCE in relation to ICOP's delays; it is ICOP who relies on it to terminate

the Subcontract. Secondly, what is trite is not that a liquidated damages clause excludes other clauses from governing the same risk; rather it is that unliquidated damages are excluded, as the cases ICOP cites (*ie*, *Chattan* and *Biffa Waste*) themselves illustrate. Thirdly, if one accepts the logic behind ICOP's argument, this works against ICOP as well. Clause 4 of its quotation (which forms Appendix F of the Subcontract) states that TSCE would be charged for standby costs at liquidated rates if stoppages occur for "reasons which are beyond the control of ICOP", including the default of others. This plainly overlaps with Clause 6, and if ICOP's argument were accepted, then delays caused by the default of others cannot justify termination under Clause 6. In our judgment, parties simply addressed the same risks in multiple ways.

(3) The Spent Delay argument

278 As for the Spent Delay argument (see [265(e)] and [269] above), ICOP has not demonstrated why its interpretation and application of Clause 6 is correct. It relies upon *Alliance Concrete* and *Jia Min* as authorities for its proposed provisos (concerning *de minimis* delays and delays that no longer impact the project's critical path) to submit it has not lost its right to terminate the Subcontract.

279 However, as explained above (at [272]), the rule on continuing breaches in *Alliance Concrete* was not articulated in relation to the construction of a termination clause. It was based on a case where both parties were in breach and the Court of Appeal sets out the pre-requisites (*viz*, there must be a continuing breach by the party when it purported to terminate the contract and its breach was of an obligation in the nature of a condition precedent), before the party seeking to terminate the contract would be held to have lost its right to do so. ICOP does not explain how those pre-requisites can be applied in a *RDC*

Concrete Situation 1 set of facts which is based on an express termination clause.

280 Also as explained above (at [276]), the court in *Jia Min*, articulated and then applied the principle to the facts, but V K Rajah JC (as he then was) ("Rajah JC"), was quick to note that it was not an invariable rule and it depended on the facts of the case; he then proceeded to give fairly common examples which would have caused the disapplication of the general rule. Rajah JC, at [61]–[62], had ruled that the subcontractor in that case was not entitled to stop work due to the main contractor's alleged slow or non-payment of progress claims because the subcontractor could not establish a direct causal nexus between the main contractor's non-compliance with the subcontract and the subcontractor's failure to complete the project. The subcontractor had therefore repudiated the subcontract by walking off the site. Here, ICOP does not explain how the principle in *Jia Min* supports its submission that it has not lost its right to terminate the Subcontract because of minor delays and delays which no longer impact the project's critical path. A breach is not necessarily spent simply because it occurred in the past. One must look further and ask whether it has the real and continuing consequence of pushing back the start and end dates for TSCE's subsequent activities. From the findings of the Judge, which we have upheld, the delays cannot by any means be considered "minor delays". Further, from what we have stated at [276], it cannot be said that the delays no longer impact the Project's critical path.

281 Further, ICOP's reliance on these authorities to submit that its breaches are only relevant if they share some nexus with its ability to start or continue with the works is mistaken.

282 Ultimately, it is difficult to square the Spent Delay argument with how parties have structured their contractual arrangements. Even though the Subcontract concerned four drives, it was one contract contemplating a continuous stream of works which comprised the construction of a DN1200 and DN1600 potable water pipe from AYE/Henderson Road to River Valley Road. The microtunnelling works were subcontracted entirely to ICOP. The Subcontract was priced "for the whole Sub-Contract Works relating to the Project". There is no legal significance to the drives; the distinction is purely operational. It was not enough for Mr Lee to highlight at the hearing of the appeal that each drive has its own commencement and end date. Because the microtunnelling works were to be carried out by only one MTBM, once the scheduled completion date at one drive was pushed back, it necessarily pushed back the following scheduled completion dates for the subsequent drives. The fallacious nature of ICOP's submission in this regard is all the more stark if it is viewed in the context of this Subcontract; it was but a relatively small part of a much larger system of potable water pipes stretching from Jalan Kampung Chantek to Marina South and River Valley Road for the PUB.

(4) Conclusion on the Performance Requirement

283 It falls on ICOP to show why the Judge erred in his interpretation and application of the Performance Requirement, and why ICOP should have been held to have "fulfilled its obligation under the contract" notwithstanding its delays. Given that we have rejected both the Any Delay and Spent Delay arguments, ICOP has failed to show that the Judge erred.

The Prevention Requirement in Clause 6

284 While most of ICOP's arguments were centred on the Performance Requirement, its case also fails decisively on the Prevention Requirement. To

recapitulate, ICOP must show that it "can for reasons which are beyond the control of ICOP not start or continue with the work in a timely manner".

285 The Judge rejected both of ICOP's arguments on this point. We agree with the Judge.

The parties' cases

286 ICOP submits that it was ready and willing to mobilise its equipment for Drive 3. However, it was unable to proceed with its works in a timely manner, because: (a) TSCE had failed to obtain the necessary permits and authorisations for ICOP to work on a 24-hour basis; and (b) TSCE had not completed construction in Shaft P5-3 nor the new headwall for Shaft P5-2 (both of which were needed in Drive 3). In respect of the second failure, ICOP observes that under the 17 August 2018 Programme, TSCE was to have completed the works and handed back Shaft P5-2 to ICOP on 16 February 2019. Yet, TSCE only completed the base slab for Shaft P5-3 on 9 March 2019, was still constructing the Shaft P5-2 headwall and thrust wall as of 13 March 2019, and was still clearing concrete waste in Shaft P5-3 as of 23 March 2019. Notably, even TSCE's delay expert had considered TSCE's failure to install the Shaft P5-2 thrust wall to have been on the critical path. Finally, ICOP observes that the requisite notice to proceed for Drive 3 was never issued by TSCE; it would have been entitled to 45 days to mobilise its equipment following the notice's issuance.

287 TSCE highlights that these arguments had been considered and rejected by the Judge, referring to [142] of the Judgment. It criticises ICOP's decision to remove the MTBM from the worksite and not to return it, notwithstanding the parties' understanding that Drive 3 was to commence on 11 February 2019. As

such, ICOP would not have been able to proceed with the Subcontract in any event. As to TSCE's delays, there was no need for Shaft P5-2 to be fully constructed before ICOP could commence Drive 3 works.

Our decision

288 We agree with the Judge that "ICOP ha[d] not put forth anything to show that TSCE's actions following Drive 2 somehow further prevented the Subcontract works from being continued in a timely manner" (Judgment at [142]).

289 We acknowledge that TSCE's preparatory works for Drive 3 took place over a period of time later than that planned in the 8 January 2018 Programme. However, ICOP has not *proved* that:

(a) it was unable to "continue with the work in a timely manner"; and

(b) its inability to continue was due to reasons "beyond the control of ICOP".

(1) ICOP's ability to continue with work in a timely manner

290 ICOP claims that TSCE should have handed back Shaft P5-2 to ICOP on 16 February 2019. Yet, as of 23 March 2019, TSCE was still clearing concrete. This affected ICOP's ability to continue with the work, since even Mr Widdowson acknowledged that TSCE's installation of a new thrust wall in Shaft P5-2 was "on the critical path and delaying works".

291 There are two difficulties with the argument, namely: (a) whether TSCE's delay even affected ICOP's ability to "continue with the work", and

(b) whether the effect was such that ICOP could not continue with the work "in a timely manner".

292 The first difficulty is that TSCE's installation of a new thrust wall has not been shown to conclusively lie on the critical path. The conclusions reached by Mr Widdowson in his As-Planned vs As-Built assessment, when assessing the periods of 14 to 19 February 2019 and 20 February to 13 March 2019, was that the Subcontract's critical path "continued to be driven by the 'Shipping, Reassembly, Testing and Commissioning of [MTBM] for P5-2 to P5-3' *and/or* the 'Install New Thrust Block'" activities [emphasis added]. He added that his assessment was limited by a lack of "detailed progress records and/or a detailed planned intent", and so was confined to examining "the actual progress of activities detailed in the Main Contract Baseline and/or Sub-Contract Baseline Programme, *even though these activities may not actually be critical within this assessment period*" [emphasis added]. His ultimate conclusion was that he was "unable to provide a definitive conclusion as to which of these two events was truly driving the Sub-Contract Critical Path in this assessment period".

293 There is therefore an even chance that TSCE's installation activities were not on the critical path. This being ICOP's only basis for saying that its ability to continue with the work was affected, ICOP's argument fails.

294 Even if one accepts that ICOP had difficulty continuing with the work, a second difficulty arises in respect of whether it could not continue with the work "in a timely manner".

295 The length of delay in question is *not* the entirety of 16 February 2019 to 23 March 2019, contrary to what ICOP seems to suggest.

296 The start date cannot be 16 February 2019, because that was when *ICOP* in fact handed Shaft P5-2 back *to TSCE* at the end of Drive 2.

297 In this regard, Dato Cheng's AEIC stated that after ICOP handed over Shaft P5-2 on 16 February 2019, TSCE should have handed the shaft back to ICOP by 1 March 2019 based on the 17 August 2018 Programme. Therefore, even on ICOP's case, any calculation of the length of delay should begin from 1 March 2019.

298 The end date should not be 23 March 2019 either. Mr Widdowson's report, on which ICOP relied, considered the final step in the thrust wall installation not to be the removal of concrete waste, but the earlier activity of the removal of formwork and scaffolding on 16 March 2019. We note that whereas the daily site reports suggest that "removal form works" and "concrete patch up" continued even past 16 March 2019, the manpower indicated for those works were solely personnel from ICOP, TSCE personnel were only present on each day for the Shaft P5-2 activities up to 16 March 2019. We thus conclude that the end date for the delay period is 16 March 2019.

299 As such, even if TSCE's preparatory works in Shaft P5-2 were critically delayed, this was only for a period of 16 days from 1 March to 16 March 2019 (both dates inclusive). ICOP has not shown that such a short delay, especially when considered against the substantial delays that had occurred over the course of Drive 2, was the sort of delay that the parties contemplated by the phrase "can … not continue with the work *in a timely manner*" [emphasis added].

(2) Reasons beyond ICOP's control

300 Even if ICOP was unable to continue with the work in a timely manner, the Prevention Requirement further requires that this be "for reasons which are

beyond the control of ICOP". This is an integral link that went unaddressed in ICOP's arguments. If ICOP had contributed to TSCE's belated preparatory works through its own prior delays, it would be hard to describe this as being "beyond [ICOP's] control". Thus, when the delays in *and to* Drive 3 are considered globally, we agree with the Judge's observation (at [142] of the Judgment) that based on the earlier delays "[t]he Subcontract works were substantially delayed, *both by the actions of ICOP and TSCE*" [emphasis added].

301 Even if we were to consider Drive 3 in isolation, ICOP contributed to its own inability to continue with the works. As Mr Widdowson's report identified, the "'Shipping, Reassembly, Testing and Commissioning of [MTBM] for P5-2 to P5-3'" was one of two candidate events on the critical path. This event refers to ICOP's decision to ship the MTBM to Malaysia on 28 January 2019 without prior discussion, and its decision not to ship it back to the worksite afterwards despite TSCE's requests.

302 ICOP's rejoinder is that it was entitled to receive a notice to proceed 45 days before it was required to begin mobilising its equipment. It also disagrees with TSCE that there existed an implied understanding that Drive 3 would commence on 11 February 2019 or that this superseded any requirement to give a notice to proceed in any event. It highlights that the Judge had dismissed TSCE's counterclaim for delays caused by the removal of the MTBM (Judgment at [131]–[134]).

303 In our view, the Judge's findings should not be taken out of context. He did not find that there was no implied understanding, or that ICOP's removal of the MTBM did not cause delay. Instead, he found it "unclear what [he was] to make of TSCE's alleged agreement", since it did "not plead that the alleged

agreement … gave rise to a variation, some form of estoppel or waiver such that ICOP could not rely on its entitlement to receive a notice to proceed …" (Judgment at [134]). The Judge's difficulty was thus with the pleadings.

304 Moreover, the significance of the Judge's observations should not be overstated. They were made in the context of TSCE bringing a counterclaim for delay damages. In that context, the relevant inquiry was whether ICOP bore responsibility for causing delay. Its entitlement to receive a notice to proceed afforded it a justification for belated mobilisation. The present inquiry is different: ICOP is asserting that it could not continue with works for reasons "beyond [its] control". Implicit in this assertion is that ICOP *would have wanted* to continue with the works, but *could not* because of reasons beyond its control. In our judgment, however, ICOP simply had no intention to continue with the works.

305 ICOP's decision to keep its MTBM in Malaysia was entirely within its control. It is notable that the absence of a notice to proceed did not feature strongly at the relevant time as a reason for why it kept the MTBM in Malaysia. It had initially informed TSCE that it would take about 15 days for the MTBM to be refurbished at the workshop, and that it would provide TSCE with the "detailed schedule for the reassembly". Subsequently, however, it announced that the MTBM's return would be targeted for "CW8" instead (*ie*, calendar week 8 of 2019, or 18 to 24 February 2019) without providing reasons for this. Despite TSCE's urging for updates and the MTBM's return, neither of these was forthcoming. In our view, ICOP *intended* not to return the MTBM to the worksite, in preparation for its decision to terminate the Subcontract on 15 March 2019. Any resulting delay cannot be said to be "beyond its control".

306 For these reasons, the Prevention Requirement is not satisfied either. We uphold the Judge's finding that ICOP had wrongfully terminated the Subcontract. We dismiss ICOP's appeal on this issue.

Issue 12: Performance bond

307 At para 2(m) of its Notice of Appeal, ICOP appeals against the Judge's finding that "TSCE's call on the Performance Bond was justified and that ICOP is not entitled to the immediate return of the full amount of S$570,000 under the Performance Bond (see [151] – [154] of the Judgment)".

308 This point can be disposed of briefly. After ICOP purported to terminate the Subcontract on 13 March 2019, TSCE called on the full sum of an on-demand performance bond that ICOP had furnished to secure its performance of the Subcontract. ICOP claims that the call on the performance bond was wrongful, and that it is entitled to recover on the bond.

309 The Judge reserved the issue of whether the call on the bond was wrongful to the second tranche of the trial. Based on his interpretation of the Subcontract terms governing the performance bond, he determined that a call on the performance bond required: (a) that ICOP breached the Subcontract, and (b) that such breach actually caused TSCE to sustain "cost, expense, loss or damage" (Judgment at [152]–[153]). Even though he was satisfied that ICOP breached the Subcontract due to its delays, whether TSCE sustained "cost, expense, loss or damage" at least equivalent to the full sum of the bond could only be determined at the second tranche.

310 We are therefore only concerned with the question of whether ICOP had breached the Subcontract. On appeal, ICOP's arguments in this regard are that it had validly terminated the Subcontract and that TSCE's counterclaims for

delay damages are without merit. Given that we have dismissed ICOP's appeal in respect of these issues (see [223], [234] and [306] above), it follows that ICOP's appeal in relation to the performance bond also fails.

Issue 13: The payment stay

311 Finally, ICOP argues in its Appellant's Case that the stay on payments (as ordered by the Judge at [162]–[167] of the Judgment) ought to be lifted.

The decision below and the parties' cases

312 The Judge's primary reason for granting the stay was that the claims and counterclaims in the Suit arose out of the same transaction, and on the authority of *Cheng Poh Building Construction Pte Ltd v First City Builders Pte Ltd* [2003] 2 SLR(R) 170 ("*Cheng Poh*") at [11], he considered that this warranted a stay on the execution of sums awarded in ICOP's claims pending the second tranche of the Suit. The Judge noted at [166]–[167] of the Judgment that it would be unproductive for ICOP to enforce the net award in its favour ahead of the second tranche, when there was a chance that the net award would ultimately be in TSCE's favour. Moreover, even if ICOP succeeds at the second tranche, it can be compensated through an award of interest.

313 On appeal, ICOP argues that the second tranche would be rendered otiose if we find that it had lawfully terminated the Subcontract, and any stay on execution ought to correspondingly be lifted. Alternatively, even if ICOP's termination was wrongful, there should be no stay on execution where the net payment was in ICOP's favour. This is because: (a) ICOP has been kept out of its money by TSCE wrongfully and for a substantial period of time; and (b) there is no evidence suggesting that any amounts payable by ICOP to TSCE would exceed the net amount in ICOP's favour. Moreover, in proceedings

below, TSCE had not sought the stay by way of a summons, but only in its closing submissions and without notice. The bifurcation application was also taken out mere weeks before the experts were to exchange their reports.

314 TSCE's response is that the Judge had correctly exercised his discretion in ordering a stay, applying the principles in *Cheng Poh* and the trite principle that TSCE has a right to set-off its claims against ICOP's. Damages would have to be assessed at the second tranche of trial to determine if any net sums are payable to ICOP; TSCE's pleaded figure for damages for wrongful termination of $2,576,825.67 already exceeds the $1,333,298.52 awarded to ICOP on its claims, and actual damages are likely to be even higher than the pleaded estimate. Finally, ICOP has not shown why an award of interest would not address its alleged concern that it has been kept out of its money.

Our decision

315 We reject ICOP's arguments and dismiss its appeal on this issue.

316 First, it has not formally appealed against the Judge's decision to order a stay in its notice of appeal. Its appeal was not framed as an appeal against the whole of the Judge's decision, but against specific findings of the Judge.

317 Secondly, it has not shown how the Judge has erred. The Judge had considered ICOP's arguments below. ICOP has not shown how the Judge's exercise of his discretion in granting the stay was "plainly wrong" (*UBQ v UBR and another matter* [2023] SGHC(A) 10 at [51]). If anything, we agree with the Judge's decision to grant a stay, and the reasons he gave for this remain sound even in the light of our findings on appeal. The trial will proceed to a second tranche, and it remains plausible that the net award would be in TSCE's favour based on the findings at that tranche. It would be unproductive for execution

efforts to be pursued ahead of the matter's final resolution. ICOP has not shown why an award of interest would not adequately address it being kept out of its money.

Conclusion

318 For the reasons set out above:

(a) ICOP's appeals on Issues 1, 2, 6, 7, 8, 9, 10, 11, 12, and 13 are dismissed.

(b) ICOP's appeal on Issue 3 (*ie*, alleged delays by TSCE between 24 February 2018 to 5 April 2018) is dismissed, but we set aside the Judge's award of $401,338.47 for TSCE's 69 days of delay, from 6 April 2018 to 25 June 2018, in respect of TSCE's delay in obtaining the Authorities' Approvals and vary the quantum payable based on the parties' agreement on the daily rates to be applied; TSCE is to pay ICOP general damages of $489,064.89 for this period of delay.

(c) We allow ICOP's appeal on Issue 4 (*ie*, MTBM rental costs) and award ICOP the sum of $255,360 for its MTBM rental costs from 22 May to 25 June 2018.

(d) We allow ICOP's appeal on Issue 5 (*ie*, award of liquidated damages to TSCE); we set aside the Judge's award of liquidated damages against ICOP but hold that TSCE succeeds on its alternative claim for general damages for ICOP's delays. ICOP is to pay TSCE general damages of $60,965.16 in respect of this issue.

319 As for costs, ICOP asks for $80,000 in costs and $10,000 for disbursements in its Appellant's Case while TSCE asks for $85,000 in costs and $2,800 for disbursements in its Respondent's Case.

320 TSCE has prevailed on most of the issues in this appeal. Costs of the appeal should therefore be awarded to TSCE. However, ICOP succeeded in its appeals on Issues 4 and 5. An adjustment in quantum was also made for Issue 3, but we note that parties had agreed on the rates to be applied. Taking all the circumstances of the appeal into consideration, and the relative complexity of the various issues on which the parties have succeeded or failed and the time taken on each of them, we fix costs of the appeal at $67,000 all in, to be paid by ICOP to TSCE. There shall also be the usual consequential orders.

321 It remains for us to thank counsel for their assistance and their very sensible approach in dealing with and managing the multiple issues before us

and also for their co-operative attitude in agreeing, on a very fair basis, the daily rates to be applied in calculating damages.

Woo Bih Li
Judge of the Appellate Division

Kannan Ramesh
Judge of the Appellate Division

Quentin Loh
Senior Judge

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