

**Commission of Inquiry into the Construction Works at and near the Hung Hom Station
Extension under the Shatin to Central Link Project**

WITNESS STATEMENT OF SAKY CHAN

I, SAKY CHAN of [REDACTED]
[REDACTED] will say as follows:

1. I was, at the times relevant to this statement, an Assistant Engineer (later promoted to Engineer) employed by Leighton Contractors (Asia) Limited (“Leighton”), the main contractor for the Hung Hom Station Extension contract (Contract SCL 1112) (the “Project”) under the Shatin-Central rail link project. The project manager for the Project is MTR Corporation Limited (“MTRCL”).
2. Unless otherwise stated, the facts stated herein are within my personal knowledge and are true. Where the facts and matters stated herein are not within my own knowledge, they are based on the stated sources and are true to the best of my knowledge, information and belief.

My qualification and experience

3. After obtaining a Higher Diploma at the Hong Kong Institute of Vocational Education (IVE) in 2011, I was employed by Leighton in July 2011 as an Assistant Engineer. I studied by distance learning on a part-time basis at the University of Technology Sydney, graduating with a Bachelor of Engineering Science degree, major in Civil Engineering, in 2016. I started working on the Project in April 2015 and was part of the construction engineering team of the Project. The construction engineering team is responsible for, amongst other things, method statement, programming, procurement, management of resources, co-ordination, supervision and inspection of the works, sequencing of the works and worker safety. I was formally promoted to Engineer in May 2015. I worked at the East West Line (“EWL”) level of the area of the South Approach Tunnels (“SAT”) (the “SAT EWL Area”) until November 2016 when I left Leighton. I understand that I qualify as a Technically Competent Person (TCP) of grade

T3 for the Project in 2016. I am currently employed by King Hang Engineering Company Limited.

My role and responsibilities

Working hours

4. My usual working hours on the Project were from 8am to 6pm. I would work overtime past 7pm because of pouring of concrete, or until 8pm/9pm when I had to handle various kinds of paperwork in the site office.

Duties and responsibilities

5. My main work responsibilities include resolving any issues arising out of the construction drawings, coordinate with and supervise the subcontractors, conduct both routine and formal joint inspections with MTRCL of the reinforcement and the preparation work for the pouring of concrete, including the formwork when it was required prior to concreting. For the SAT EWL Area, Fang Sheung Construction Company was the subcontractor for the fixing of reinforcement bars (“rebar”), and China Technology Construction Limited was the subcontractor for concreting works (including formwork and falsework erection and general cleaning of the area prior to concreting) after the fixing of rebar.
6. I was generally responsible for supervising the work of the subcontractors in my area, including rebar fixing and other preparation work for concrete pours. This included conducting formal joint inspection with the MTRCL’s construction engineers / Inspectors of Works at each “hold point” under the Inspection Test Plans (“ITP”). I discuss this in greater detail below.
7. In the SAT, I worked with the engineers at or around my level in Leighton’s construction engineering team, which was managed by a site agent.

Daily routine

8. On a typical day, I would start in the site office. I would then go on site to look at the various construction works, including conducting routine inspections. On average, I spent around half my time on site and rest in the site office. I would stay back until

after 7pm if there was concreting, or until around 8pm/9pm when I was dealing different sorts of paperwork, such as records of works, method statements, drawings and Request for Inspection and Survey Check (“RISC”) forms. There was no fixed amount of time that I would work on site / in the site office; it mainly depends on my workload and the matters that I had to attend to during the day. I could work for up to about 12 or 13 hours on a busy day.

9. During the routine inspections, I would check whether the work was being carried out in accordance with Leighton’s safety standards, approved/agreed drawings, the required workflow process and the ITP. I would also check on the progress and manpower for the works to ensure that the subcontractors were aware of the work schedule and would be able to meet target completion dates. If there were any issues, I would communicate with the foremen of the subcontractors.

Supervision and inspection

10. There were various levels of supervision and inspection conducted on the works in my areas of the Project. This included routine inspections (as mentioned above) and formal joint inspections which were conducted by Leighton and MTRCL at “hold points”.
11. I set out below a description of my routine inspections and the formal joint inspection process.

Routine and informal inspections

12. My team and I would undertake informal inspections, often together with the MTRCL’s construction engineers / Inspectors of Works if we met each other on site or arranged to look at the works before the formal inspections.
13. In these informal inspections, we would check briefly the coupler connections, arrangement of the rebar, condition of the formwork and falsework and other miscellaneous items prior to concreting. When checking the connections between rebar and couplers, I looked generally to ensure that the rebar was fully screwed in or only a few threads were showing out of the coupler. I understand that it was impossible to fully screw every rebar into the couplers. Sometimes, despite the best efforts of the subcontractor’s workers, a few threads could not be screwed into the coupler.

Formal joint inspections

14. The formalities associated with the formal joint inspections were as follows:
- (a) There were two key formal joint inspections of the reinforcement. The first was the rebar fixing inspection with the MTRCL's construction engineer. The second was the pre-pour check with the MTRCL's Inspector of Works;
 - (b) The subcontractors knew that their work would need to be inspected or rectified (if there were any defects) before they could proceed to the next phase. This was called a "hold point". The "hold points" were a critical stage in the construction process. They were set out in the ITPs and included in the Method Statements. Once a "hold point" was reached, subsequent work could only commence after a formal joint inspection was conducted by Leighton and MTRCL and only if both parties gave their approval;
 - (c) Prior to or around the time of a formal joint inspection, Leighton's engineer would notify MTRCL (by issuing a RISC form);
 - (d) MTRCL's construction engineer (or MTRCL's Inspector of Works delegated by MTRCL's construction engineer) and Leighton's engineer would conduct the formal joint inspection for rebar fixing (which I discuss further below);
 - (e) Once the MTRCL's construction engineer (or MTRCL's Inspector of Works as delegated by its construction engineer) had approved the rebar fixing inspection, Leighton's engineer may then conduct further checks to ensure that the area was ready for concreting. Generally, the practice was to arrange the concreting preparation work and rebar fixing work simultaneously to reduce delay;
 - (f) Once the preparation works before concreting were completed, MTRCL's Inspector of Works and Leighton's engineer would conduct the formal joint inspection for the pre-pour check;

- (g) It was standard practice for the MTRCL's construction engineer / Inspector of Works to approve verbally the inspected works and authorise Leighton to proceed immediately after the formal joint inspections. The only exception would be if MTRCL required rectification work. If the defect was minor, Leighton would ensure that such remedial work was completed immediately by the subcontractor during the joint inspection. If more time was required to complete the rectification work, Leighton's staff would check the work later before arranging a further inspection with MTRCL. MTRCL's construction engineer / Inspector of Works would subsequently inspect the rectification work and give their verbal approval; and
 - (h) It was standard practice for work to proceed after verbal approval was obtained from MTRCL following a formal joint inspection. This allowed works to continue without delay. Thereafter, MTRCL's construction engineer / Inspector of Works would complete the RISC form to record their approval and return it to Leighton later.
15. The practical aspects of the formal rebar fixing inspection were as follows:
- (a) There were in fact two formal joint inspections. The first one was conducted after the rebar fixing subcontractor had installed the bottom layer of rebar and, the second inspection was carried out after the installation of the top layer of rebar;
 - (b) Each of the two inspections of rebar fixing consisted of checking the arrangement of rebar, the spacing of the bars, lap length of the bars and the connections between the bars and couplers. The following steps would be taken:
 - i. physically measure the spacing and lap length of rebar samples in the area to be inspected and check whether the rebar complied with the working or agreed drawings; and
 - ii. with reference to the measured samples, conduct visual inspection across the area to ensure that there was consistency of the spacing and lapping of the rebar;

- (c) As noted above, for the connections between rebar and couplers, I would check generally that the threads of the rebar were screwed into the couplers and not exposed (or that only a few threads were exposed at most); and
- (d) Each of the two joint inspections were conducted by MTRCL's construction engineer (or MTRCL's Inspector of Works as delegated by its construction engineer) and Leighton's engineer.

RISC Forms

- 16. As one of the engineers on Leighton's engineering construction team of the Project, I was responsible for a number of the formal joint inspections for rebar fixing and pre-pour checks at the SAT EWL Area.
- 17. For the formal joint inspections that I conducted, I would usually liaise with MTRCL's staff regarding availability for inspection and issue RISC forms around the time of the inspection or in the days thereafter. As noted, it was standard practice for Leighton to continue working once it obtained MTRCL's verbal approval after a formal joint inspection. This allowed work to continue without delay. MTRCL's staff was aware, and approved, of this standard practice.
- 18. Leighton has disclosed a table summarising the records of the formal joint inspections for rebar fixing and pre-pour checks for the SAT EWL Area (numbered **LCAL.SAT.2.01** in the Second Index of Documents disclosed by Leighton ("**Index**")). I have not confirmed the accuracy of this table, but it indicates that I did not submit RISC forms for 9 out of the 26 relevant formal joint inspections in that area. The details are as follows:
 - (a) I did not submit a RISC form for 5 out of the 13 rebar fixing inspections; and
 - (b) I did not submit a RISC form for 4 out of the 13 pre-pour checks.
- 19. The reason why I did not submit those RISC forms is that I was constantly busy supervising the works, completing inspections and attending to other necessary tasks. I did not have time to review all of the RISC forms that I had issued in order to consider if I had missed any and simply forgot to issue the ones that are outstanding.

20. For those formal inspections in the SAT EWL Area where I forgot to issue a RISC form, I confirm that:
- (a) MTRCL's construction engineer (for rebar fixing inspection) or Inspector of Works (for pre-pour checks) was contacted when each "hold point" was reached;
 - (b) MTRCL's construction engineer / Inspector of Works conducted the formal joint inspection (as described above) with Leighton;
 - (c) Verbal approval from the MTRCL's construction engineer / Inspector of Works was always obtained before work was allowed to proceed or concrete to be poured. The only exception was if the MTRCL's construction engineer / Inspector of Works required rectification work to be done. If the defect was minor, remedial work was completed immediately by the relevant subcontractor during the joint inspection. If more time was required to complete the rectification work, a further joint inspection would be arranged with MTRCL. In those cases, the MTRCL's construction engineer / Inspector of Works subsequently inspected the rectification work and gave their verbal approval; and
 - (d) It was agreed and understood with the MTRCL's construction engineer / Inspector of Works that the formal joint inspections should proceed to allow works to continue without delay even if a RISC form had not been completed.
21. This is in line with MTRCL's site diary records, which recorded the rebar fixing works and the preparation work for the pouring of concrete for the SAT EWL Area that were undertaken before, and were formally inspected by MTRCL and Leighton jointly during the rebar fixing inspection and pre-pour check. The rebar fixing inspection was conducted on or soon after the day of the completion of the rebar fixing works, so that works could continue without injecting delay to the progress; the pre-pour check was performed on or shortly before the scheduled day of concreting. The time and volume of the concrete pours were also recorded in the site diaries. Moreover, there are concrete test results that prove the date of the concrete pours in the relevant areas and confirm that MTRCL was aware of those pours. These site diary records and concrete test results have been disclosed to the Commission under section **LCAL.SAT.2.02** in the Index. When a permit to load (TW4) was required for the formwork before concreting, I would request a formwork inspection by Leighton's Temporary Works

Coordinator, who would issue the TW4 upon inspection and approval of the formwork. A copy set of the TW4 forms have been disclosed to the Commission under section **LCAL.SAT.2.02** in the Index.

22. For the areas that I was responsible for, I can therefore confirm that:
- (a) all formal joint inspections for rebar fixing and pre-pour checks were carried out and approved by MTRCL; and
 - (b) concrete was poured after “hold points” were inspected and MTRCL authorised Leighton to proceed with the concrete pour.

Testing of rebar

23. For the areas that I was responsible for in the SAT EWL Area, other engineers in my team and/or the Quality Assurance team of Leighton would assist me with the ordering of the necessary rebar and the arrangement for the testing of the rebar. The practical aspects of the rebar testing were as follows:
- (a) A batch of rebar would be ordered and the MTRCL’s Inspector of Works would be informed when the batch was delivered to site;
 - (b) The MTRCL’s Inspector of Works would select samples from the batch to be cut and labelled for testing;
 - (c) Thereafter, the MTRCL’s Inspector of Works would inspect the samples again to ensure that they were accurately labelled and everything was in order;
 - (d) The samples were then sent to the MTRCL’s lab for testing. Leighton’s Quality Assurance team handled this part of the process; and
 - (e) Leighton’s Quality Assurance team would inform me of the test results in due course.
24. I note from the record and can confirm that all batches of rebar that were ordered by those assisting me were tested and passed all of the tests. In addition, all those batches of rebar passed the tests conducted by the manufacturer and came to the site with a Mill Test Certificate confirming that they were satisfactory. I therefore believe that all of the rebar that were ordered for the Project by those assisting me was acceptable and met the relevant requirements.

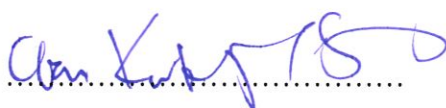
Use of couplers on the Project

25. At some locations in the Project, it was necessary to connect some rebar by using couplers (instead of continuous lapped bars) at some construction joints because of technical limitations present on site, or, as I recall, maintaining access to all areas of the site during construction. This would not have been possible if continuously lapped bars were installed across the access routes.
26. MTRCL's staff was well aware of, and agreed with, the use of couplers at the construction joints instead of continuous lapped bars. The MTRCL's construction engineers / Inspectors of Works were on site for many hours each day and would have seen the couplers being installed. They would also have inspected such couplers during the formal joint inspections for the construction joints.

The works are safe

27. In the areas that I was responsible for on the Project (which is all that I can comment on), I am satisfied with Leighton's and my supervision of the Project. We implemented a thorough system of supervision and inspection to ensure that the procedures were followed.
28. In my personal opinion, I believe that the works that I supervised are safe and properly constructed.

Dated the 17th day of May 2019.

Signed: 

Saky Chan