COMMISSION OF INQUIRY INTO THE DIAPHRAGM WALL AND PLATFORM SLAB CONSTRUCTION WORKS AT THE HUNG HOM STATION EXTENSION UNDER THE SHATIN TO CENTRAL LINK PROJECT

WITNESS STATEMENT OF AIDAN GERALD ROONEY FOR MTR CORPORATION LIMITED

I, AIDAN GERALD ROONEY, of SAY AS FOLLOWS:

, WILL

- I was until recently General Manager SCL Civil NSL of the Shatin to Central Link ("SCL") Project of MTR Corporation Limited ("MTRCL").
- 2. In July 1981, I obtained a Bachelor of Science Degree in Civil Engineering at London South Bank University. I have been a member of The Institution of Civil Engineers (UK) since 1988.
- 3. I have over 39 years of experience in the civil engineering and construction industry. After graduation, I worked in England for three companies in the positions of Site Engineer, Senior Site Engineer and Site Agent. In 1990, I came to Hong Kong to work for Gammon Construction Limited as a Project Manager, where I was involved in a number of major land based and marine projects. In January 2007, I left Hong Kong and moved to Australia. In May 2007 I joined Cardno (WA) PTY Ltd. ("Cardno"), an engineering consultancy and project management company as Senior Project Manager. In September 2008, I was promoted to Cardno's South West Office Business Unit Manager and remained in that position until May 2013.
- 4. My employment with MTRCL is as follows:
 - (a) In May 2013, I returned to Hong Kong and joined MTRCL as Project Manager SCL of the Projects Division, initially responsible for the Hong Kong Island Section of the SCL Project.
 - (b) From January 2014 to September 2014, I was assigned as Project Manager SCL Civil – NSL 1, responsible for all the major North South Line ("NSL") construction and tendering contracts.

- (c) In October 2014, I was appointed as Acting General Manager SCL Civil EWL of the Projects Division, responsible for all East West Line ("EWL") and NSL civil contracts.
- In April 2015, I was promoted to the position of General Manager SCL Civil EWL of the Projects Division.
- (e) In July 2015, my title was further changed to General Manager SCL Civil NSL of the Projects Division, responsible for all NSL construction and tendering contracts, and I remained in that position until August 2018. From July 2017 to August 2018, although not formally appointed, I was also acting as Head of Project Safety of the Projects Division.
- 5. I also wish to add that, in respect of Contract 1112, I took up the role of Project Manager in January 2016 in addition to my role as General Manager – SCL Civil – NSL. This is because Mr Brendan Reilly, the previous Project Manager for Contract 1112, left MTRCL in around January 2016 and the position was vacant to date.
- 6. As can be seen from the above paragraphs, my role and responsibility within MTRCL changed over the course of the relevant period. I will explain this in my response to items 3 and 4 below.
- 7. I am providing this Witness Statement in response to various matters raised in a letter dated 27 July 2018 from Messrs Lo & Lo ("Letter"), who I understand are the solicitors acting for the Commission of Inquiry into the Diaphragm Wall and Platform Slab Construction Works at the Hung Hom Station Extension under the Shatin to Central Link Project ("Commission of Inquiry"). In this statement, I shall address the matters listed as items 1, 3, 4, 5, 7, 8(a), 8(d), 8(e), 8(f), 11(a), 11(b), 11(c), 11(d), 11(i), 11(l), 11(n), 11(p), 13(a) and 13(b) of the Letter.
- 8. While I am aware of the matters raised in items 1, 3, 4, 5, 7, 8(a), 8(d), 8(e), 8(f), 11(a), 11(b), 11(c), 11(d), 11(i), 11(n), 11(p), 13(a) and 13(b) of the Letter based on my first-hand observations and involvement in the SCL Project from May 2013 to August 2018 and I confirm that the contents of this statement are true to the best of my knowledge and belief, there are occasions when I can only speak to matters by reference to MTRCL's documents due to the lapse of time, in which case I believe the contents of those documents are true and correct.

Item 1: Describe and explain the respective roles duties and responsibilities of Your Company, the Government (including the Transport and Housing Bureau, HyD and the Buildings Department) ("the Government"), Leighton and its subcontractors in the construction of the diaphragm walls and platform slabs under Contract 1112 (ie. both the EWL platform slab and NSL platform slab), including the respective construction, quality control, supervisory, monitoring, inspection and reporting roles in ensuring the compliance, quality, safety and integrity of the construction works. Please adduce the relevant Entrustment Agreement(s), contract(s), sub-contract(s), specifications, approved plans and drawings. Drawings and diagrams which may assist the Commission in understanding the relevant works should be provided as well.

(A) Roles, duties and responsibilities of MTRCL, Leighton and its sub-contractors

- 9. I am able to describe and explain at a high level the roles, duties and responsibilities of MTRCL, Leighton Contractors (Asia) Limited ("Leighton") and its sub-contractors in the construction of the diaphragm walls, EWL slab and NSL slab under MTRCL's main contract with Leighton ("Contract 1112").
- 10. MTRCL acts as project manager managing the works under Contract 1112, and is principally responsible for:
 - (a) the safety aspects of the construction of the works carried out;
 - (b) the progress of the works in accordance with the programme;
 - (c) the quality of the works in accordance with the terms and specifications of Contract 1112; and
 - (d) the budget of the works.
- 11. In undertaking such a management role, MTRCL is required to act in accordance with MTRCL's management systems and procedures (see clause 4.6(C) of the Entrustment Agreement for Construction and Commissioning of the Shatin to Central Link dated 29 May 2012 between the Government and MTRCL ("EA3")). Thus, MTRCL has prepared and implemented the *Project Management Plan for the Design and Construction of Shatin to Central Link (SCL)* ("PMP"), under which MTRCL is responsible for, among other things:

- (a) Obtaining all the necessary agreements, statutory approvals and consents from the relevant Government authorities regarding the design and construction of the SCL to enable the contractors to proceed with the works (paragraph 3.2);
- (b) Appointing registered general building contractors and registered specialist contractors, as appropriate, to supervise and carry out each area of the works in accordance with the agreed proposal, and to certify to the relevant authorities upon completion of works (paragraph 3.7). All civil engineering works by the appointed contractors are required to be carried out under the direct supervision of MTRCL site supervision staff in accordance with the established procedures (paragraph 7.2.1).
- 12. Leighton is the main contractor / registered general building contractor appointed by MTRCL for the construction of the works under Contract 1112, including the diaphragm walls, the EWL slab and the NSL slab of the Hung Hom Station Extension. Upon MTRCL's approval, Leighton appointed the following sub-contractors for Contract 1112:
 - (a) BOSA Technology (Hong Kong) Limited (**"BOSA"**) for the provision of all necessary labour, supervision, plant, equipment and materials for the supply of couplers and the threading of reinforced steel bars;
 - (b) Intrafor (Hong Kong) Limited ("Intrafor") for the diaphragm wall and barrette construction and the associated works;
 - (c) China Technology Corporation Limited ("China Technology") for the provision of all necessary labour, supervision, plant, equipment and materials for formwork and concrete placing; and
 - (d) Fang Sheung Construction Company ("Fang Sheung") for the provision of all necessary labour, supervision, plant, equipment and materials for reinforcement bar cutting, bending and fixing in respect of, among other things, the EWL slab and NSL slab.
- 13. MTRCL is not required to communicate or deal with the sub-contractors directly. Any communications from MTRCL relating to the work of the sub-contractors were to be dealt with via Leighton, which is what occurred in practice during the course of the Contract 1112 works.

(B) Drawings and diagrams in respect of the relevant works

- 14. I think it may also be of assistance to the Commission of Inquiry if I explain the nature of the works relating to the construction of the diaphragm walls (which consists of the east diaphragm wall and west diaphragm wall), the EWL slab and the NSL slab.
- 15. I refer to the general arrangement plans of the Hung Hom Station and Stabling Sidings at the EWL track level (**Appendix AGR-1**) and the cross-section drawings of the Hung Hom Station and Stabling Sidings (**Appendix AGR-2**).
 - (a) The external diaphragm walls are marked orange on the general arrangement plans and cross-section drawings. The external diaphragm walls serve as the cofferdam to facilitate the excavation and construction of the EWL slab and NSL slab.
 - (b) The EWL track slab is marked green on the cross-section drawings (with the OTE slab hatched). The EWL track slab is the main structural slab which is located below and supports the EWL platform slab and track beds. The train loading is transferred via the track beds onto the EWL track slab which is connected to and supported by the diaphragm walls. The EWL track slab also acts as a transfer slab, transmitting the column loading supporting the existing station structures onto the diaphragm walls via the slab and the connections between the diaphragm walls at the east and west sides of the EWL track slab. The EWL track slab is typically three metres thick at Areas B and C, and typically one metre thick at Areas A and the Hong Kong Coliseum ("**HKC**").
 - (c) The EWL platform slab is marked purple on the cross-section drawings. The EWL platform slab is constructed on the EWL track slab. It provides the means for the passengers to access the trains on the platform.
 - (d) The NSL track slab is marked red on the cross-section drawings. The NSL track slab is a ground bearing slab with structural connections to the diaphragm walls at the east and west sides of the NSL track slab. The NSL track slab is two metres thick. There are no shear key details at the connections between the NSL track slab and the diaphragm walls (i.e. the connection details of the NSL track slab to the diaphragm walls are different from that of the EWL track slab to the diaphragm walls). Only straight threaded steel reinforcement bars are used to connect the NSL track slab to the couplers in the diaphragm walls at the east and west sides of the NSL track slab. There is traditional lapping of steel reinforcement bars within the main body of the NSL track slab and at the junction with the threaded steel reinforcement bars connecting to the diaphragm walls.

- (e) The NSL platform slab is marked yellow on the cross-section drawings. The NSL platform slab is constructed on the NSL track slab. It provides the means for the passengers to access the trains on the platform.
- (f) The track beds are marked blue on the cross-section drawings. They include the precast rail sleepers to which the train rails are connected.
- (g) I note that the Terms of Reference and the Letter made reference to the "EWL platform slab" and the "NSL platform slab", instead of the "EWL track slab" and "NSL track slab". To make it clear at the outset, in my Witness Statement I will refer to the "EWL track slab" and "NSL track slab" as "EWL slab" and "NSL slab" respectively, although there is a technical distinction between "platform slab" and "track slab".
- 16. As shown in the general arrangement plans (**Appendix AGR-1**), the EWL track slab spans from Gridline 0 to approximately Gridline 49/50. To the right of approximately Gridline 49/50 is the North Approach Tunnel. To the left of Gridline 0 is the South Approach Tunnel. There are diaphragm walls in the South Approach Tunnel. The NSL track slab is constructed within the diaphragm walls but no platform slab (as defined in paragraph 15(g) above) is constructed in the South Approach Tunnel area.

Item 3: With reference to an Organisation Chart of Your Company, describe and explain the roles and responsibilities of each person in Your Company involved in the construction, quality control, supervision, monitoring, inspection of the diaphragm walls and the platform slabs and the steel bars and steel bar structures within the diaphragm walls and the platform slabs. Identify, with names and job description, the relevant persons on the Organisation Chart and indicate whether such persons are still in the employment of Your Company. If such persons have left Your Company, please provide contact details if such information is available.

Item 4: Please provide as an exhibit to the witness statement a list of the managers, supervisors and inspectors (with names and contact details) employed or engaged by Your Company who were involved in the steel fixing works and the construction of the steel structures within the diaphragm walls and platform slabs. Identify the type of work and duties undertaken by such managers, supervisors and inspectors.

17. I had acted as General Manager – SCL Civil – EWL, General Manager – SCL Civil – NSL, Competent Person ("CP") and Engineer's Delegate. In the following paragraphs, I will first explain the roles and responsibilities of the General Managers, and how the management responsibilities between Mr. Lee Tze Man ("TM Lee") (General Manager –

SCL), Mr. Wong Chi Chung ("Jason Wong") (General Manager – SCL Civil – EWL) and myself (General Manager – SCL Civil – NSL) at the material time were divided. Then, I will explain the roles and responsibilities of the Competent Person ("CP") and the Engineer's Delegate.

(A) General Managers

- 18. First of all, the hierarchy of the General Managers under the SCL Project is as follows:
 - (a) Under the Projects Director, there is a position of General Manager SCL. TM Lee was Acting General Manager – SCL from November 2014 until March 2015 and was General Manager – SCL from November 2014 until August 2018.
 - (b) Before July 2015, the position of General Manager SCL Civil EWL was under General Manager – SCL, and was responsible for managing the civil engineering works of the SCL Project (including all the EWL and NSL civil contracts). I was Acting General Manager – SCL Civil – EWL from October 2014 until March 2015, and General Manager – SCL Civil – EWL from April 2015 until June 2015.
 - (c) From July 2015 onwards, the role of General Manager SCL Civil –NSL was set up to cater specifically for the civil engineering tendering and construction works for the NSL section of the SCL Project. I took up the role of General Manager – SCL Civil – NSL and was responsible for managing the civil engineering works located south of and including Contract 1111 (hence also including Contract 1112). Jason Wong took up the role of General Manager – SCL Civil – EWL and was responsible for managing the civil engineering works located north of and excluding Contract 1111. This meant that our responsibilities were split geographically at the north boundary of Contract 1111. Both of us reported to the General Manager – SCL (namely, TM Lee).
- 19. The responsibilities of the General Managers are defined in the PMP, which include: (a) overseeing the design and construction of the SCL Project; (b) managing, supervising and coordinating the CPs; (c) ensuring, to the extent possible, that the SCL Project is delivered on time, within budget and to the required construction, safety, quality and environmental standards; and, (d) supervising the site works with resident site staff. In practice, the General Managers' responsibilities also include public interface, staffing and stakeholder management.
- 20. As between Jason Wong and myself, as mentioned above, our responsibilities were split geographically at the north boundary of Contract 1111. Accordingly, notwithstanding that

Jason Wong took up the position of General Manager – SCL Civil – EWL, I still had the project management responsibilities for the civil (EWL and NSL) works under Contract 1112. Jason Wong's responsibilities were limited to being the CP (from February 2015 to August 2018) in respect of Contract 1112. The duties and responsibilities of the CP will be explained in paragraphs 22 to 24 below.

21. As between TM Lee and myself, TM Lee's discipline is not civil engineering and construction, but is electrical and mechanical engineering. Hence, even though I was his subordinate, if any issue regarding civil engineering and construction under the SCL project (including Contract 1112) arose, I would deal with it myself or in conjunction with Dr. Wong Nai Keung Philco ("Philco Wong") (Projects Director) whose discipline is in civil engineering. As a matter of procedural reporting, I would keep TM Lee informed.

(B) <u>Competent Person (CP)</u>

- 22. I acted as the CP for Contract 1112 from September 2013 until February 2015. Jason Wong replaced me and assumed the role of CP for Contract 1112 in February 2015 and remained in that role until August 2018. The construction of the diaphragm walls was carried out during my tenure as well as Jason Wong's tenure as CP.
- 23. The responsibilities of CP for Contract 1112 are set out in paragraph 2(b) of the Instrument of Exemption under section 54(2) of the Mass Transit Railway Ordinance (Chapter 556) in respect of the Hung Hom Station Compound and Station at Sung Wong Toi for Shatin to Central Link (SCL) dated 5 December 2012 (the "IoE") as follows:

"... a competent person ... shall take up the responsibilities and duties of Authorized Person/Registered Structural Engineer, to co-ordinate and supervise each area of the works in accordance with the agreed proposals, to certify the preparation of plans or documents and to certify to the relevant authorities upon completion of works...".

- 24. The responsibilities and duties of an Authorized Person / Registered Structural Engineer (and hence the responsibilities and duties of the CP for Contract 1112) are set out in the Code of Practice for Site Supervision 2009 ("CoP"), which was issued by the Buildings Department ("BD") for the purpose of providing guidance to practitioners on the adoption of good practices for site supervision. As stated in Tables 4.1 and 4.2 of the CoP:
 - (a) As regards the Authorized Person:

- (i) His/her responsibilities include: (1) assuming overall responsibilities in the appointment of his representative and technically competent persons; (2) ensuring the full implementation of the supervision plan regarding his own stream; (3) overseeing the full implementation of the supervision plan regarding the registered contractor's stream; and, (4) establishing an efficient and effective mechanism for dealing with non-conformities.
- (ii) His/her duties include: (1) assessing the scale for each type of works relevant to the project; (2) compiling his own part of the supervision plan;
 (3) coordinating and submitting the supervision plan to the Building Authority; (4) devising checklists of specific tasks for his technically competent persons; (5) supervising his representative and technically competent persons; (6) notifying the Building Authority of any non-conformities which pose an imminent danger, or cause a material concern for safety and which the registered contractor fails to rectify; and, (7) carrying out site inspections as necessary.
- (b) As regards Registered Structural Engineer:
 - (i) His/her responsibilities include: (1) assuming overall responsibilities in the appointment of his representative and technically competent persons; (2) ensuring the full implementation of the supervision plan regarding his own steam; (3) overseeing the full implementation of the supervision plan regarding the registered contractor's stream; and, (4) giving permission to the registered contractor for carrying out temporary works categorised as Case 3 under paragraph 4. 7 of this Code.
 - (ii) His/her duties include: (1) compiling his own part of the supervision plan;
 (2) devising checklists of specific tasks for his technically competent persons; (3) supervising his representative and technically competent persons; (4) notifying the authorised person of any non-conformities which pose an imminent danger, or cause a material concern for safety and which the registered contractor fails to rectify; and, (5) carrying out site inspections as necessary.
- 25. When I was the CP for Contract 1112 from September 2013 until February 2015, I carried out site inspections generally on a biweekly basis and signed relevant inspection records in accordance with the requirements under the CoP, which I will further explain in paragraph 43 below. During the biweekly site inspections, I would check whether there

were general site safety issues and any non-conforming works. If there was any non-conforming works, I would require rectification works to be carried out immediately.

(C) Engineer's Delegate

26. Further to the above, I was appointed by Mr. Stephen Chik (the then Engineer under Contract 1112) as the Engineer's Delegate under Contract 1112 (pursuant to clause 2.5(a) of the Conditions of Contract) from 31 August 2013 to 16 September 2013 and from 6 February 2015 onwards to act on the Engineer's behalf generally in respect of all clauses of the Condition of Contract except clauses 2.3, 2.5, 72.3, 73.1, 74, 75.8, 88.2, 101 and 103. Any act of the Engineer's Delegate within the scope of his authority shall for the purposes of Contract 1112 constitute an act of the Engineer. This is more of a contractual role vis-à-vis Leighton. Leighton as the contractor under Contract 1112 should only take instructions from the Engineer, the Engineer's Delegates, the Engineer's Representative, and the Assistant of the Engineer's Representative. In this respect, I refer to the appointment letters dated 11 March 2013, 31 July 2013, 26 August 2013 and 6 February 2015 signed by Mr. Stephen Chik.

Item 5: Describe and explain the steps, procedures and timeline in the construction and completion of the steel fixing works in the diaphragm walls and platform slabs. With reference to the said steps, procedures and timeline, please describe and explain the respective roles and involvement of the Government, Your Company, Leighton, Fang Sheung, Intrafor and China Technology and elaborate on the interaction and relationship between Your Company and these parties on site and on a day-to-day working basis. Please provide the site diaries and/or supervision and inspection records of Your Company in relation to the steel fixing works in the diaphragm walls and platform slabs under Contract 1112.

(A) <u>The timeline in the construction and completion of the steel fixing works in the</u> <u>diaphragm walls, the EWL slab and NSL slab</u>

- 27. In relation to the construction of the steel fixing works in the diaphragm walls, the EWL slab and NSL slab, I set out the timeline as follows:
 - (a) In respect of the diaphragm walls, the construction of the steel fixing works commenced in July 2013 and ended in June 2015.
 - (b) In respect of the EWL track slab, the construction of the steel fixing works commenced in March 2015 and ended in August 2016.

- (c) In respect of the NSL track slab, the construction of the steel fixing works commenced in December 2015 and ended in May 2016.
- 28. I understand that the other witnesses for MTRCL will give evidence as to the steps and procedures involved in the construction and completion of the steel fixing works in the diaphragm walls, the EWL slab and NSL slab.

(B) <u>Roles of MTRCL</u>

- 29. As to the roles of MTRCL on site and on a day-to-day working basis, as Acting General Manager / General Manager for a significant number of contracts under the SCL Project in addition to Contract 1112, the day-to-day management of Contract 1112 was the responsibility of the Construction Manager, as is the case for all other contracts. However, that is not to say I did not get involved. I would have regular site-based walks and discussions with the MTRCL senior site team (including the Project Managers, the Construction Managers and occasionally the Senior Construction Engineers) as well as the senior managers of Leighton regarding a wide range of matters, including safety, progress, quality and the budget of the works. I would also have regular office-based discussions with my team.
- 30. In addition to the above, internal meetings were regularly held for reporting on contract updates under the SCL Project, including Contract 1112. I refer to the various types of meeting that I personally attended:
 - (a) Projects Division Leadership Meetings These meetings were usually held biweekly and chaired by Philco Wong. All General Managers including TM Lee, Jason Wong, myself and the General Managers of MTRCL's other projects would attend. In these meetings, Philco Wong would talk about general issues and problems affecting the Projects Division and progress on previously identified issues and problems.
 - (b) Senior Project Management Meetings On a bi-weekly basis, all General Managers, Project Managers and the Chief Programming Engineer would attend to discuss safety, progress and other issues and problems concerning the SCL Project, as well as MTRCL's other projects.
 - (c) SCL Senior Management Communication Meetings On a bi-weekly basis, the General Managers, Project Managers and Construction Managers of MTRCL would discuss issues in respect of the SCL Project regarding contract

administration, design management, construction management and environmental issues.

- (d) Executive Committee Meetings These were held regularly on a weekly basis. When required, the General Managers of the SCL Project (including TM Lee, Jason Wong and myself) would attend to provide the Executives with updates as to the general progress of the SCL Project.
- 31. No issues of any shortening, cutting of threaded steel reinforcement bars or defective connection of the threaded steel reinforcement bars to the reinforcement couplers in the diaphragm walls, the EWL slab and the NSL slab were discussed or brought to my attention during any of the above meetings that I attended up until the end of May 2018.
- 32. Apart from the above mentioned meetings, various reports were prepared for the SCL Project on a regular basis:

(a) "Weekly Report" / "Weekly Summary Report":

- (i) On a weekly basis, the Construction Manager for each contract (including Contract 1112) or, if delegated, one of his Senior Construction Engineers, would prepare and submit a "Weekly Report" to the Project Manager and myself. Based on the Construction Managers' Weekly Report, the responsible Project Manager, including (where applicable) myself, would prepare a "Weekly Summary Report" containing updates in relation to safety, progress and any other problems or issues arising, and forward the same to Philco Wong and TM Lee.
- (ii) I would also take note of any matters in the Weekly Reports and Weekly Summary Reports which required attention and take any further action as necessary, including discussing the matters with my Project Manager and Construction Manager and giving directions to them during weekly site meetings wherein the Weekly Reports and Weekly Summary Reports were discussed or during weekly site walks.
- (b) "Project Progress Reports" These would be prepared on a monthly basis for MTRCL's internal use and I would provide my comments where appropriate / if necessary. They would contain updates for, *inter alia*, the SCL Project in relation to safety, progress, stakeholder management, the environment, quality and any other problems and issues.

(c) "Projects Director's Reports on Progress and Cost for New Railway Projects" – these would be prepared on a monthly basis by the Projects Team on Philco Wong's instructions based on information contained in "Project Progress Reports". They would include updates on the SCL Project as well as MTRCL's other projects (e.g. the Express Rail Link Project and the South Island Line Project). I would provide my comments where appropriate / if necessary.

(C) <u>Interaction and relationship between MTRCL, Leighton, Fang Sheung, Intrafor and</u> <u>China Technology on site and on a day-to-day working basis</u>

- 33. Fang Sheung, Intrafor and China Technology are Leighton's domestic sub-contractors and MTRCL obviously does not have any contractual relationship with them. Insofar as the construction and completion of the steel fixing works in the diaphragm walls, the EWL slab and the NSL slab are concerned, Leighton would liaise with its sub-contractors in relation to any issues concerning such works. MTRCL would not give direct instructions to those sub-contractors as to how they were to carry out the works pursuant to their sub-contracts with Leighton.
- 34. In the same vein, if any steel fixing works in the diaphragm walls, the EWL slab and NSL slab were found not to have been carried out in accordance with the requirements of Contract 1112, MTRCL would give instructions to Leighton, who would then liaise with its sub-contractors to take the necessary actions to rectify the construction works. However, if the sub-contractors were present at the time when MTRCL gave such instructions to Leighton, the sub-contractors would obviously also be aware of such instructions.

(D) <u>Interaction and relationship between MTRCL and the Government on site and on a day-</u> <u>to-day working basis</u>

- 35. As far as interfacing with the Government is concerned, "Monthly Progress Reports on Entrustment Activities" for the SCL Project would be prepared on a monthly basis and submitted to the Railway Development Office ("**RDO**") of the Highways Department ("**HyD**") to report on issues in relation to, *inter alia*, the progress, safety status, cash flow and expenditure and other matters of concern regarding the SCL Project. I would provide my comments where appropriate / if necessary.
- 36. In addition to the above, there were regular meetings between MTRCL's representatives and the Government. I attended the SCL Monthly Progress Meetings. In these meetings, representatives of MTRCL, RDO and Pypun-KD (Government's consultant) would

discuss issues in relation to, amongst others, construction safety, design management, project management, stakeholder engagement and programming.

Item 7: Describe and explain Your Company's system and measures in place at the material time to ensure that the steel bars in the diaphragm walls and platform slabs were properly installed and connected in compliance with Requirements, Standards and Practice and that any irregularities, non-compliances and defects will be reported and addressed by the appropriate parties and/or persons. Please adduce all related manuals, records and documents on this topic.

(A) Introduction

- 37. There are parallel systems / streams in place to ensure that the steel bars in the diaphragm walls, EWL slab and NSL slab were properly installed and connected in compliance with the Requirements, Standards and Practice and that any irregularities, non-compliances and defects were reported and addressed by the appropriate parties and/or persons:
 - (a) BD imposed certain requirements and/or conditions under the IoE and BD Acceptance Letters (as defined below) for MTRCL to comply with under EA3;
 - (b) On the other hand, MTRCL itself has devised and established its own project management system and procedures, and required Leighton to comply with these project management system and procedures under Contract 1112. These systems and procedures comply with the requirements and/or conditions imposed by BD, and in addition, provide more detailed guidelines for MTRCL's and Leighton's personnel to follow.
- 38. As will be clear from my evidence as set out below, there is a significant overlap between the two streams stated in paragraphs 37(a) and 37(b) above. The requirements under both streams are mutually compatible. MTRCL and Leighton would generally use the same staff to satisfy the requirements under both streams. By way of illustration, the same personnel of MTRCL and Leighton may carry out: (1) site inspection and quality supervision as required by BD; and, (2) site inspection and site surveillance under MTRCL's project management system and Contract 1112.
- 39. In the following paragraphs:
 - (a) First, I will set out the requirements and conditions imposed by BD on MTRCL under the IoE and BD Acceptance Letters pursuant to EA3 and explain what MTRCL has done to fulfil them (in <u>Section (B)</u> below);

(b) Second, I will explain the features of MTRCL's own management system; and, by reference to Contract 1112, demonstrate how MTRCL ensures that MTRCL's and Leighton's personnel comply with the various requirements imposed by BD and those provided under MTRCL's own management system (in <u>Section (C)</u> below).

(B) <u>BD's Requirements and/or Conditions imposed on MTRCL under the IoE and BD</u> <u>Acceptance Letters</u>

(i) <u>Section (B)(1): Site Supervision Plan ("SSP")</u>

BD's Requirements for SSP

40. Under the IoE and BD Acceptance Letters, in so far as the installation and connection of the steel bars in the diaphragm walls, EWL slab and NSL slab are concerned, BD requires MTRCL to submit site supervision plans ("SSP") to BD before the commencement of the relevant works.

MTRCL's compliance with BD's Requirements for SSP

- 41. To comply with BD's requirement for SSP, in respect of each particular element of work under Contract 1112, the CP of MTRCL, the Registered Geotechnical Engineer ("**RGE**") of MTRCL and the Authorised Signatory ("**AS**") of Leighton would jointly prepare a SSP setting out the details of the name, grade and number of the responsible technically competent persons ("**TCPs**") carrying out inspections and their frequency level of site inspection. The SSP would be submitted to BD.
- 42. The SSP would then be implemented by three functional streams: (1) the CP's stream; (2) the RGE's stream; and, (3) the AS's stream. Each of the CP, RGE and AS is required to lead their respective stream, which consists of their respective representatives and TCPs responsible for carrying out site inspection. The duties and responsibilities of the CP, RGE and AS and their respective representatives and TCPs relating to site supervision and safety are set out in Tables 4.1 to 4.4 of CoP. Note that the CoP refers to the Authorised Person's stream and the Registered Structural Engineer's stream. By reason of paragraph 2(b) of the IoE (mentioned in paragraph 23 above), the CP under Contract 1112 takes up both streams.
- 43. The CP, RGE and AS are required to devise checklists for themselves and their respective TCPs to carry out site inspections by making reference to the typical items as provided in Tables 5.1 and 5.2 of the CoP and to include any other particular items

considered appropriate and necessary for their projects and surrounding conditions. The TCPs shall carry out their duties as per the check lists devised by their heads of stream, and all the check lists and inspection records ("**TCP Record**") shall be kept on site for the inspection by the Building Authority. In this respect I refer to paragraphs 5.1 to 5.4 of the CoP. When I was the CP for Contract 1112 from September 2013 until February 2015, I did carry out site inspections as per the requirement under the CoP and signed the TCP Records under the CP Stream in respect of the diaphragm wall and barrette construction under Contract 1112.

44. If any item on the checklists is not satisfactory upon inspection, the TCPs are required to complete Part 1 (*Record of Non-Conformity*) of the Non-Conformity and Rectification Report to record the details of the non-conformance, and the CP / RGE are then required to issue instructions to Leighton to rectify the non-conformity. After Leighton's completion of the rectification works to the satisfaction of the CP / RGE, the CP / RGE would certify completion of the rectification works in Part 2 (*Record of Rectification Works*) of the Non-Conformity and Rectification Report. I refer to paragraph 10.3 and Figure 10.1 of the CoP for the details of the procedures in this regard.

(ii) <u>Section (B)(2): BD Acceptance Letters and the Mechanical Couplers for Steel</u> <u>Reinforcing Bars for Ductility Requirements (the "Coupler Requirements")</u>

BD's Coupler Requirements

- 45. Under the IoE, MTRCL was required to, *inter alia*, submit drawings, plans, calculations and other details as may be necessary to BD to implement the consultation process detailed in the Reference Schedule to the IoE.
- 46. After MTRCL's submission of the documents referred to in paragraph 45 above, BD issued various letters (collectively, the "BD Acceptance Letters") to MTRCL accepting MTRCL's proposals contained in those documents in respect of the various works stated therein, subject to BD's comments / requirements / conditions. In relation to works involving mechanical couplers for the steel reinforcement bars, a set of conditions entitled "Mechanical Couplers for Steel Reinforcing Bars for Ductility Requirements" (the "Coupler Requirements") form part of BD's requirements / conditions under the BD Acceptance Letters with which MTRCL has to comply when proceeding with the steel fixing works within the diaphragm walls, the EWL slab and the NSL slab.
- 47. The Coupler Requirements include, *inter alia*, the following which relate to the installation and connection of steel bars:

- (a) First, qualified site supervision of the mechanical splice works by an experienced and competent person shall be provided to ensure that the works were carried out in accordance with the agreed proposal and that the required quality standards were complied with. In particular and among other requirements:
 - (i) The CP should assign a quality control supervisor to supervise the works, determine the necessary frequency of inspection by the quality control supervisor (which should not be less than once a week), and devise inspection check lists. The minimum qualifications and experience of the quality control supervisor is to be the same as the grade T3 TCP, as stipulated in the CoP;
 - (ii) The Registered General Building Contractor/Registered Specialist Contractor ("RGBC/RSC") should assign a quality control co-ordinator to provide full time on-site supervision of the works and devise inspection check lists. The minimum qualifications and experience of the quality control co-ordinator is to be the same as the grade T3 TCP, as stipulated in the CoP;
 - (iii) The names and qualifications of the supervisory personnel representing the CP and the RGBC/RSC respectively should be recorded in an inspection log book. The date, time, items inspected and inspection results should be clearly recorded in the log book. The log book should be kept at the site office and, when required, produced to the Building Authority for inspection.
- (b) Second, a copy of the manufacturer's quality assurance scheme is required to be submitted to BD prior to the commencement of the mechanical coupler works. The quality assurance scheme should include, *inter alia*, a description of the method of installing the steel reinforcing bars to the couplers including a description of any special equipment involved, its frequency of calibration and any special training provided to the site fabricators and the inspection required.
- (c) Third, a quality supervision plan of the CP and the RGBC/RSC is required to be submitted to BD prior to the commencement of the mechanical couplers works. The quality supervision plan should include the following details:
 - (i) Assignments of the quality control supervisor of the CP and the quality control co-ordinator of the RGBC/RSC to supervise the manufacturing

process of the connecting ends of the steel reinforcing bars, and the installation of the steel reinforcing bars to the couplers;

- (ii) Frequency of quality supervision of the mechanical couplers works, which should be at least 20% of the splicing assemblies by the quality control supervisor of the CP and full time continuous supervision by the quality control co-ordinator of the RGBC/RSC;
- (iii) Frequency of quality supervision for couplers to be used at the top of the pile cap and transfer plate, which should be at least 50% of the splicing assemblies by the quality control supervisor of the CP and full time continuous supervision by the quality control co-ordinator of the RGBC/RSC.
- (d) Fourth, a quality supervision report signed by the CP to confirm that the quality supervision had been adequately provided upon completion of the mechanical splice works should be submitted to BD.

MTRCL's compliance with BD's Coupler Requirements

- 48. On 12 August 2013, pursuant to the Couplers Requirements, MTRCL submitted to BD the "Quality Supervision Plan on Enhanced Site Supervision & Independent Audit Checking By MTRC & RC for Installation of Couplers (Type II SEISPLICE Standard Ductility Coupler)" ("QSP") appending BOSA's technical manual for the installation of couplers which, according to the QSP, prescribes the quality control / assurance scheme.
- 49. As per paragraph 2 of the QSP, MTRCL and Leighton should assign their respective TCPs to supervise the installation of steel reinforcing bars to the couplers as Quality Control Supervisors (MTRC) and Quality Control Supervisors (RC) respectively. Paragraph 5 of the QSP states that:
 - "1. Supervision and Inspection by RC on site installation works
 - *i. Quality Control Supervisors (RC) will [be] responsible [for] carry[ing] out full time and continuous supervision of the splicing assemblies on site.*
 - *ii.* Supervision and inspection will be recorded in the Record Sheet (appendix C) and write into the inspection log book by Quality Control Supervisors (RC).

- *iii. Checking includes length of thread and correct connection of 2 bars with couplers. Criteria are provided in appendix D.*
- 2. Supervision and Inspection by MTRC on site installation works
 - *i.* Frequency of quality supervision should be $\geq 20\%$ of the splicing assemblies by MTRC T3.
 - *ii. Quality Control Supervisors (MTRC) will record the inspection by countersigning the inspection Record Sheet and put it in an inspection log book.*
 - *iii.* Checking includes length of thread and correct connection of 2 bars with couplers. Criteria are provided in appendix D."
- 50. In addition to the foregoing, to comply with BD's requirement, MTRCL submitted six batches of Quality Supervision Reports of Coupler for Diaphragm Wall / Barrettes (the "Quality Supervision Reports") to BD (as part of the "Submissions for Completion of Works for Foundation (Load Bearing Diaphragm Wall / Barrette)") to confirm that quality supervision had been adequately provided in respect of the diaphragm walls under Contract 1112. These reports enclosed summary tables of the coupler inspection records compiled by reference to the actual individual coupler inspection records.
- 51. I signed on the first and second batches of the Quality Supervision Report on 27 January 2015 and 4 February 2015, as I was the CP for Contract 1112 at the time when the foundation works for the diaphragm wall were completed on 15 January 2015 and 14 January 2015 respectively. That said, so long as the results were marked satisfactory in the inspection record summaries and there were no missing records, I would sign off the inspection record summaries enclosed with the Quality Supervision Reports.
- 52. I ceased to be responsible for submitting further batches of the Quality Supervision Reports to BD after Jason Wong replaced me as CP for Contract 1112 in February 2015. Since MTRCL has still not reached the stage of certification of completion of the works at the EWL slab and the NSL slab, I believe that the quality supervision reports in respect of the EWL slab and the NSL slab had not been prepared as at 7 August 2018 when I left MTRCL.

(C) MTRCL's own management system and Contract 1112

53. As mentioned above, MTRCL itself has devised and established its own project management system and procedures, and required Leighton to comply with applicable

elements of the project management system and procedures under Contract 1112. MTRCL's project management system and procedures are defined under the PMP which refers to the Project Integrated Management System ("**PIMS**"). I will explain each of them in turn as follows.

(i) Project Management Plan (PMP)

- 54. First of all, MTRCL is obliged to prepare and implement a project management plan to demonstrate that its proposed management process is compliant with the exemption requirements under the IoE. The PMP (i.e. the Project Management Plan for the Design and Construction of Shatin to Central Link (SCL)) outlines the scope of the works for the SCL Project, explains how MTRCL would manage the SCL Project in high-level terms, and sets out the responsibilities of different levels of MTRCL's professional staff. The PMP is regularly reviewed and updated by MTRCL to take into account any changes in personnel arrangements as well as MTRCL's project management procedures.
- 55. The PMP makes reference to a three-tier meeting protocol that was established to facilitate communication between MTRCL, RDO and BD on technical and project management issues regarding the SCL Project. The three-tier meetings consist of meetings at the senior management level, management level and working level respectively. The terms of reference for the three-tier meetings are set out in Appendix 10 to the PMP (Version F) dated June 2016.

(ii) Project Integrated Management System (PIMS)

- 56. PIMS is MTRCL's own project management system that is applicable to MTRCL's railway projects and modification works. The system is defined in a series of MTRCL internal documents, including the following (collectively, the "**PIMS Documents**"):
 - (a) The Project Integrated Management Manuals, which define the system, organisation, responsibility, control and the documentation requirements for any project, and apply to all railway projects and major modification works of MTRCL;
 - (b) The Project Procedures, which set out the roles and responsibilities of individual design and construction staff to enable them to properly discharge their duties and responsibilities in respect of MTRCL's contractual obligations;
 - (c) The Project Practice Notes, which describe the various processes involved in a project and provide guidance to individual staff to implement the project;

- (d) Other documents including the Project Management Knowledge and the Projectspecific Management Plans.
- 57. Although the PIMS Documents set out comprehensively the project management procedures for MTRCL staff across different levels to follow and make reference to, they are not meant to be prescriptive or supplant the professional judgment of MTRCL staff. The PIMS allows for flexibility, and each project and construction team is permitted to develop their own communication system or channel according to the specific requirements of each project and the particular circumstances on the site. MTRCL staff are allowed to exercise their individual professional judgment in determining whether and, if so, what issues or concerns need to be escalated.
- 58. I do not propose to explain each of the PIMS Documents in detail and I trust that the Commission of Inquiry will excuse me from doing so. I only wish to highlight that under "PIM Procedure: Construction Management (PIMS/P/11)" ("PIMS (Construction Management)") and "PIM Practice Note: Monitoring of Site Works (PIMS/PN/11-4)" ("PIMS (Monitoring of Site Works)"), there are various processes and requirements in relation to the site monitoring of the steel fixing works.

(1) Inspection and Test Plans, RISC Forms and the "Hold Point" system

- 59. Leighton is required to submit Inspection and Test Plans ("ITPs") containing appropriate quality hold points ("Quality Hold Point") for critical activities to MTRCL for review and approval. A Quality Hold Point is a point in time when a notice of permission, consent or no objection by MTRCL is required before Leighton can commence, proceed with or terminate an activity. I refer to PIMS (Construction Management) at paragraph 10.1.1 and PIMS (Monitoring of Site Works) at paragraph 3.1.
- 60. At each Quality Hold Point, Leighton is required to sign and submit to MTRCL a request for inspection, test or survey check of site works using MTRCL's standardised Request for Inspection / Survey Check Forms ("**RISC Forms**"), stating the location of the works, the works to be inspected or surveyed, any drawing reference and any work proposed after approval. MTRCL is then required to inspect and sign off the works carried out. If there are any adverse comments identified on the RISC Form concerning significant interface with other work activities or where remedial actions cannot be completed within a reasonable period of time, MTRCL should require Leighton to resubmit the RISC Form. I refer to PIMS (Monitoring of Site Works) at paragraph 5.1.2.

- 61. Other than formal inspections at the Hold Points, MTRCL's inspectorate team (which is generally present at the site on a continuing basis) is also responsible for carrying out regular site surveillance to monitor the day-to-day works of Leighton, in order to identify any concerns or issues as early as possible so that remedial actions can be taken by Leighton promptly. Site activities should be recorded in the site diaries on a daily basis. Moreover, the Senior Construction Engineer ("SConE") / Senior Inspection of Works ("SIOW") is responsible for coordinating the taking of site photographs periodically (normally monthly) to record the progress of the works. In this respect I refer to PIMS (Monitoring of Site Works) at paragraph 5.1.2.
- 62. MTRCL has in place a web-based information and document management system called "Electronic Project Management System" (ePMS) for receiving, reviewing, approving and retaining project-related deliverable submissions from consultants and contractors (see PIMS (Construction Management) at paragraph 5.2).

(2) Non-conformance Reports

- 63. If MTRCL identifies significant non-conforming works during their inspection and monitoring of Leighton's works, MTRCL may issue a Non-conformance Report ("NCR") to Leighton, and the non-conforming works shall be corrected and rectified before proceeding to the next stage of works or before covering up. The procedures for raising an NCR are set out in PIMS (Construction Management) at paragraphs 10.3.1 to 10.3.5 and PIMS (Monitoring of Site Works) at paragraphs 5.3.1 to 5.3.6 and Exhibit 7.9. To be clear, MTRCL's NCRs are distinct from the Non-Conformity and Rectification Report as required by BD (as mentioned in paragraph 44 above).
- 64. If MTRCL raises an NCR to Leighton, Leighton shall then propose corrective measures and preventive actions to rectify the works and to eliminate the causes of nonconformance to prevent recurrence. MTRCL shall review and consider Leighton's proposed corrective measures, and upon MTRCL's approval, Leighton shall execute the corrective measures and preventive actions to correct the non-conforming works. MTRCL's construction team shall then follow up to ensure that the issues are properly closed out.
- 65. The PIMS documents do not specify the documentation required when MTRCL reviews, considers and approves Leighton's proposed corrective measures and when MTRCL rereviews the initially non-conforming works. In practice, this will depend on the particular circumstances of the site.

66. Apart from the above, if Leighton identifies any non-conforming works, Leighton should follow the relevant quality procedures of its own certified quality management system as approved by MTRCL's project team by issuing its own NCRs to its sub-contractors. MTRCL shall obtain a copy of Leighton's NCR to its sub-contractor to maintain oversight (see Exhibit 7.9 to PIMS (Monitoring of Site Works)).

(iii) <u>Requirements imposed by MTRCL on Leighton under Contract 1112</u>

Quality Assurance Plan, Method Statements and Inspection and Test Plans

- 67. MTRCL has adopted the PIMS for over 20 years and the PIMS is embedded within MTRCL's construction contracts, including Contract 1112.
- 68. Under Contract 1112, MTRCL requires Leighton to comply with the requirements stipulated in the IoE¹ and to adopt a certified quality management system for the construction of the works.² In particular, Leighton is required to submit a Quality Assurance Plan ("QAP") for MTRCL's approval³ and to implement an effective quality management system in accordance with the QAP.⁴ In addition, in line with the requirements under PIMS (as mentioned above), MTRCL requires Leighton to submit ITPs for MTRCL's approval at least four weeks prior to the commencement of the relevant works.⁵
- 69. The QAP sets out how Leighton would manage and control the quality aspects of the works to comply with MTRCL's requirements under Contract 1112. Under the QAP, Leighton would prepare, *inter alia*, the following documents for MTRCL's approval to control the quality of the construction of elements of the works, including the quality of the materials and the installation and connection of the steel reinforcement bars in the diaphragm walls, the EWL slab and the NSL slab:
 - (a) Method statements The method statements set out the sequence and method of construction of the works and describe the safety measures to be undertaken during the construction of the works.
 - (b) *ITPs* (which were appended to the method statements) The ITPs set out, from a quality control perspective, the submission, inspection and testing requirements,

¹ Clause P2.2 of Particular Specification.

² Clause G9.1.1 of General Specification.

³ Clause G9.2.1 of General Specification.

⁴ Clause G9.2.5 of General Specification.

⁵ Clause G9.2.3 of General Specification.

the "hold points" (i.e. Quality Hold Points) and the person(s) / party(ies) responsible for each stage of the construction process.

Item 8(a): Explain and confirm whether Your Company has any knowledge of the Defective Steel Works (whether undertaken by Leighton and/or its sub-contractors) and if so, identify and describe the relevant events and occasions. Please describe the defects, explain in what ways Requirements, Standards and Practice had been breached and provide particulars of such events and occasions (with reference to plans and drawings, photographs and documents as necessary and appropriate), including but not limited to the dates, time, locations, number of steel bars affected and the equipment used to shorten or cut the steel bars.

Item 8(d): If the events and occasions were reported to you by your managers, supervisors, inspectors and/or other persons, identify the person(s) who made the reports to you.

Item 8(e): Following Your Company's knowledge of the relevant events and occasions, please describe and explain what steps and measures were taken by Your Company to (i) investigate the Defective Steel Works; (ii) alert and report the matter to the Main Parties and the Government or any of them and (iii) rectify the Defective Steel Works.

Item 8(f): If a report was made, please identify the persons in Your Company who reported the matter to the Main Parties and the Government and the recipient(s) of such reports. If the matter was not reported to the Main Parties and the Government, please explain why no report was made.

- 70. I did not hear of the alleged Defective Steel Works until I received an email from my Construction Manager at the time, Mr. Michael Fu ("Michael Fu"), on 6 January 2017 (11:28 am), forwarding an email chain containing:-
 - (a) an email from Mr. Anthony Zervaas ("Anthony Zervaas") of Leighton to Mr. Michael Fu dated 6 January 2017 (11:18 am); and
 - (b) an email from Mr. Jason Poon (**"Jason Poon"**) of China Technology to Anthony Zervaas of Leighton dated 6 January 2017 (9:45 am).
- 71. I have re-read that email exchange to refresh my memory. I note that in his email, Jason Poon alleged that he "found photos taken at 18:18 to 18:19 of Sept 22, 2015 showing two Leighton labour[ers] cut[ting] away the threading section of the threaded lapping bars and installed them onto the west shear face on the diaphragm wall, while MTRC didn't discover such malpractice and even unable to inspect the coupler installation due to

access problem. The pour had been poured without finding on such malpractice finally". However, prior to that, nobody raised any issues with me relating to the alleged Defective Steel Works during the meetings or site visits that I attended or on any other occasions.

- 72. Upon being made aware of the allegations made by Jason Poon in his email dated 6 January 2017 (9:45 am), I directed Michael Fu to work with Leighton to understand the background of the allegations and to instruct Leighton to investigate and provide a formal report of the findings of its investigations. At the same time, I directed Michael Fu to ask the Public Relations Department of MTRCL to prepare a media release should there be any media enquiry. In this respect, I refer to the email from Michael Fu to Chan Prudence Fong Ting and Lee Floran Yat Ling on 6 January 2017 (6:30 pm) and the subsequent email from Lee Floran Yat Ling to myself on 10 January 2017 (11:08 am).
- 73. In addition, soon after I was made aware of Jason Poon's allegations, I discussed the same separately with Philco Wong and TM Lee. The reason why I informed Philco Wong and TM Lee was that it was an alleged incident notified by a sub-contractor who I believed was having commercial issues with the main contractor and had threatened to make a public release of the information that he had. In addition to the alleged quality issue it was necessary to address the potential media related issue, and I wanted to alert Philco Wong and TM Lee of the possibility that this sub-contractor would go to the media and make it public. In this regard, I have re-read an email I sent to TM Lee on 6 January 2017 (1:32 pm), where I said:

"Following our discussion at lunch time regarding China Technology and Jason Poon, Ref below email from Jason.

This is a part of Jasons strategy to put pressure on Leighton to pay him the extra \$3M this week.

As Michael advises we are checking our records to ascertain whether there is any validity in Jason's claim.

Jason may leak such claims to the media, we are preparing the LTT [i.e. Line To Take]."

74. Following my discussion with Philco Wong and TM Lee and with TM Lee's approval, I asked Mr. Wu Kah Wah ("Carl Wu") (Co-ordination Manager – SCL) to independently examine the construction records to assess whether the steel reinforcement and couplers for the EWL slab of Contract 1112 had been installed in accordance with the requirements of the relevant quality assurance and quality control regimes.

- 75. In January / February 2017, I received the report prepared by Leighton on the alleged quality issue as well as a report from Carl Wu entitled "Review of quality assurance & quality control of steel reinforcement and coupler installation for the East West Line (EWL) track slab of Contract 1112 for the Shatin to Central Link (SCL) Project" ("Internal Review Report"). According to the contents of these reports, apart from routine observations of workmanship issues which were rectified promptly at site level, there had been only one incident that had resulted in a formal Non-conformance Report No. 157 being issued by Leighton to Fang Sheung on 18 December 2015. This Nonconformance Report was copied to Mr. Kit Chan ("Kit Chan") (the Construction Manager at that time) under Document Transmittal Form (1112-DTF-LCA-QUM-000067) on the same day. It recorded that "Threaded bars at 3m thickness EWL slab at Area C3 bay C3-2 / C3-3, was found 5 number of threaded steel bars heads – Y40 at bottom layer which were wire cut and hadn't screwed into couplers face to bay C3-1 / C3-4 / eastern Dwall". Following the issue of Non-conformance Report No. 157, Fang Sheung took corrective measures and promptly rectified the non-conformances as recorded by Leighton and inspected by MTRCL. The incident was resolved and there was no other evidence to support the allegations made by Jason Poon. After a separate subsequent discussion with Philco Wong and TM Lee, we believed that the incident recorded by Non-conformance Report No. 157 was an isolated issue. On the basis of the independent review of MTRCL and the investigation report of Leighton, we concluded there was no need to carry out any further follow-up action.
- 76. I was made aware of the allegations made by Jason Poon for the second time in September 2017. On 15 September 2017 at 11:06 am, Jason Poon sent an email to Mr. Chan Fan Frank (Secretary for Transport & Housing) copied to Anthony Zervaas of Leighton, which stated: "We are a subcontractor responsible for the works of formwork and concreting to the extension works of MTRC Project SCL1112 Hunghom Station while Messrs Leighton is the Main Contractor. We would like to invite a joint interview in presence of the senior representative of the Bureau, MTRC, Leighton and our company reviewing and discussing an important issue that we found and reported in this January 2017 on the execution of the works, which is much related to the interest of the Public". Anthony Zervaas forwarded Jason Poon's email to me by an email at 3:30 pm on the same day, and stated that "... We are trying to get in contact with Jason to attend a meeting at our head office today. Will keep you posted on progress with this matter".
- 77. Given that we had concluded there was no need to carry out any further follow-up action after Leighton's investigation and MTRCL's review in around January / February 2017, one of my main concerns at that time was to keep RDO informed and to prepare a LTT

(i.e. Line to Take) for a potential media release. There was no reason to revisit Jason Poon's allegations as Jason Poon had not provided any more relevant factual information.

78. Notwithstanding, I raised the issue with Philco Wong and TM Lee on the same day. To refresh my memory, I have re-read an email I sent to TM Lee and Philco Wong on 15 September 2017 at 6:58 pm that stated:

"The meet between Carl Speed/Anthony Zervaas and Jason Poon has just been completed.

Jason Poon is seeking a payment of alleged \$3M, for completed works

Carl Speed and Anthony will meet with Jason Poon again on Monday to agree the payment.

I have told Anthony that Leighton must finalise and close their 1112 subcon account with CT next week, once and for all, the legal terms of which to cover all related aspects will need to be agreed."

79. Further, I sent an email on 15 September 2017 at 7:23 pm to Mr. Jonathan Leung of RDO for HyD that stated:

"... Mr Karl Speed (General Manager) and Anthony Zervaas (PjD) of Leighton met with Mr Jason Poon of China Technology this evening. MTR did not attend this meeting.

They have agreed to further meetings tomorro[w] Saturday, and on Monday 18/9 to resolve their commercial issues.

We will provide a further update by cob on Monday 18/9."

80. Three days later, on 18 September 2017 at 6:28 pm, I received an email from Anthony Zervaas of Leighton, in which he said that:

"We have concluded final account negotiations with ChinaTech this afternoon.

The Director of China Tech, Mr Jason Poon has signed the following documentation:

- *Final Account for Sub-Contract Final Account Statement
- *Sub-Contractor Worker Receipt of Wage Declaration
- *Confidentiality Agreement the subcontractor has agreed to keep confidential all confidential information relating to the Sub-Contract works or the Main Contract Works.

The final payment cheque has also been released to ChinaTech.

ChinaTech currently have nil labour on the project and we have agreed a transparent mechanism for ChinaTech to return to the project to demobilize their site office containers and collect their material and equipment."

81. Having received this email from Anthony Zervaas of Leighton at 6:28 pm, I requested Michael Fu to provide an update to Mr. Jonathan Leung of RDO for HyD, and Michael Fu did so by an email sent at 7:00 pm on the same day:

> "Further to Aidan's email below, we have just received an update from Anthony Zervaas of Leighton, advising that they have concluded the final account negotiation with Jason Poon of China Technology this afternoon and have signed the associated agreement.

> A copy of Leighton's email giving such details and demobilization arrangement is attached for your information."

82. On the same day at 7:35 pm, I received a further email from Anthony Zervaas, forwarding to me an earlier email sent on the same day by Jason Poon to Mr. Sai Ho Leung of the Transport and Housing Bureau (at 7:22 pm), which stated:

"During these few days we are working tight and hard on the suspecting technical issues with Messrs Leighton and had reached satisfactory understanding and full clarification. ie the suspecting subject had been cleared now and no significant impact is retained.

In order to avoid any unwanted impact and due to the good progress observed, we thus kept silent on the investigation from Messrs HyD and we had did our best endeavor on our act of non-disclosure.

We believe it is a full and final end of the issue and may we invite to close all relevant files accordingly.

Thank you for your kind attention"

- 83. After discussions with Philco Wong and TM Lee, we concluded that no further action was required by MTRCL. Indeed, in light of all the correspondence in January, February and September 2017 as mentioned above, my understanding at the time was that this was a domestic dispute regarding payment between Leighton and China Technology and that the matter had been resolved culminating in Jason Poon sending the email dated 18 September 2017 to Mr. Sai Ho Leung in the terms set out above.
- 84. After that, allegations concerning non-compliant steel fixing works only came to my attention again at the end of May 2018 when RDO requested MTRCL to submit a report to demonstrate that any irregularities of steel bar fixing works had been fully rectified before concreting and that the works were up to the required quality requirements. MTRCL submitted the "*Report on SCL Contract 1112 Review of the EWL Slab Construction*" (i.e. the MTRCL Report) to RDO on 15 June 2018.
- 85. Apart from the circumstances stated in paragraphs 70 to 84 above, I was not aware of the allegations of Defective Steel Works during my time with MTRCL.

<u>Item 11(a): Provide your detailed comments and explanation on the matters and allegations</u> stated in the said Press and Media Reports.

86. Having reviewed the photos and videos published in the Press and Media Reports, I am unable to tell when and where those photos and videos were in fact taken. As such, I have doubts in relation to the source and basis of the various allegations stated in the Press and Media Reports. Therefore I do not wish to include in my Witness Statement any comments or speculation related to the Press and Media Reports.

Item 11(b): Please identify the person or persons responsible for preparing the MTRCL Report.

87. As General Manager – SCL Civil – NSL, I worked with my Projects Team, the Legal Department of MTRCL and the external legal advisors engaged by MTRCL to collectively compile the MTRCL Report. In particular, I provided information and input in relation to contractual and construction-related issues for the MTRCL Report.

Item 11(c): Explain why the MTRCL Report covers matters relating to the steel fixing works for EWL platform slab only and not the diaphragm walls and the NSL platform slab. While the diaphragm walls extend all the way down to the NSL platform slab and the steel

fixing works for those areas were carried out by the same contractor and sub-contractors, explain why Your Company has confined your investigation to the EWL platform slab only. Confirm whether Your Company is satisfied with the quality, safety and integrity of the diaphragm walls and NSL platform slab and that the steel fixing works thereof are in compliance with Requirements, Standards and Practice. Explain the basis of your belief and confirmation.

- 88. As to why the MTRCL Report covers matters relating to the steel fixing works for the EWL slab:
 - (a) On 29 May 2018, MTRCL received enquiries from the media about the steel fixing works for the EWL slab of the Hung Hom Station Extension.
 - (b) On 31 May 2018, MTRCL received a letter from the RDO of HyD "express[ing] its grave concern on the recent media reports on the non-compliant steel fixing works found at the joints between diaphragm walls and platform slab at Hung Hom Station under Contract 1112", and RDO requested MTRCL to submit a report by 14 June 2018.
 - (c) As the media reports at that time concerned only the steel fixing works for the EWL slab, and given the enormity of the task and time pressure, the MTRCL Report was confined to cover matters relating to the steel fixing works for the EWL slab only and did not include those relating to the construction of the diaphragm walls and the NSL slab.

Item 11(d): Confirm whether Your Company has any additional information and materials to supplement the MTRCL Report and if so, please adduce such additional information and materials by way of a supplemental report.

- 89. As mentioned above, by a letter dated 31 May 2018 RDO requested MTRCL to submit a report by 14 June 2018 to, amongst other things, demonstrate that any irregularities in the steel bar fixing works had been fully rectified before concreting and that the works were up to the required quality requirements. Further, RDO suggested that MTRCL should "seriously consider conducting suitable tests to verify the integrity of the joints [between diaphragm walls and platform slab at Hung Hom Station under Contract 1112]".
- 90. MTRCL had thus been under serious time pressure to gather information and to prepare a report to be submitted to RDO. Further, in light of RDO's letter, MTRCL had to engage an independent expert to conduct a load test to critically test the connection between the EWL slab and the eastern diaphragm wall (in particular, the connections between the top

rows of reinforcement bars and couplers). This was on top of the continuing construction works of the Project. MTRCL's Projects Team was simply overloaded, indeed overwhelmed, with work.

- 91. One of MTRCL's Projects Team's tasks was to confirm the total number of couplers connecting the EWL slab to the east and west diaphragm walls and the number of couplers installed by Leighton at the 31 transverse construction joint locations between adjacent bays of concrete and at temporary openings within the whole EWL slab, the task of which I asked Mr Ho Ho Pong ("James Ho") (SConE Civil) to undertake. Leighton was undertaking a separate check of the number of couplers upon MTRCL's request and I asked James Ho to compare his figures with Leighton's figures to arrive at a reconciled set of figures.
- 92. Soon after, James Ho confirmed that:
 - (a) the total number of couplers connecting the EWL slab to the east and west diaphragm walls was 23,520; and
 - (b) the number of couplers installed by Leighton at the 31 construction joint locations between adjacent bays of concrete and at temporary openings within the whole EWL slab was 19,811.
- 93. Based on the number of couplers as provided by James Ho, I asked James Ho to confirm MTRCL's compliance with the quality supervision requirement regarding mechanical couplers works imposed by BD. In this connection, James Ho told me that Mr. Wong Chi Chiu (**"Kobe Wong"**) (SIOW II) had carried out inspection of far more than 50% of the coupler splicing assemblies and therefore was prepared to certify that he had inspected such a percentage of the coupler splicing assemblies.
- 94. I then received a set of record sheets from James Ho, who told me that these record sheets were prepared based on the inspections that Kobe Wong carried out at the time of construction. After several rounds of comments on the calculations of the total quantity of couplers required to comply with the BD requirements of minimum 20% and 50% of the total quantity referred to in paragraph 92 above, I received the finalised version of Kobe Wong's signed record sheets on 15 June 2018 from James Ho. I was instructed to attach them to the MTRCL Report on the same day. The previous versions were discarded as the calculated minimum BD quantities were incorrect.
- 95. At this juncture, I wish to point out that it is acceptable to prepare retrospective records so long as inspections had in fact been carried out at the time. I have now refreshed my

memory on those record sheets referred to in paragraph 94 above, and I duly note the remark that "this form serves a retrospective record of coupler installation".

- 96. Unfortunately, with hindsight and after the event, in the course of preparing these record sheets, the construction team forgot to take into account the change in construction detail to the east diaphragm wall. This is explained in paragraphs 99 to 102 below.
- 97. As a result, paragraph 5.3.1.7 of the MTRCL Report states that "In accordance with the design accepted by BD, the total number of couplers connecting the EWL slab to the east and west diaphragm walls was approximately 23,500. In addition, to facilitate their method of slab construction, Leighton installed approximately 19,800 couplers at the 31 construction joint locations between adjacent bays of concrete and at temporary openings within the whole EWL slab."
- 98. On 15 June 2018, Mr. Frederick Ma attended a press conference on behalf of MTRCL. During the preparation for the press conference, he asked me whether the number of couplers connecting the EWL slab to the east and west diaphragm walls referred to in the MTRCL Report (approximately 23,500) was correct, and whether the Projects Team had any evidence to support that figure. I answered that the number of couplers connecting the EWL slab to the east and west diaphragm walls referred to in the MTRCL Report (approximately 23,500) was correct. My answer was based on the figures provided by the MTRCL and Leighton construction teams.
- 99. MTRCL's Projects Team continued to labour under immense time pressure even after the MTRCL Report was issued on 15 June 2018 because at that time, beside the continuing construction works, MTRCL was developing the methodology and programme for a load test to critically test the connection between the EWL slab and the eastern diaphragm wall (in particular, the connections between the top rows of reinforcement bars and couplers). At around the same time, MTRCL asked Atkins China Ltd ("Atkins") to prepare the updated working drawings for submission to BD.
- 100. For these reasons, MTRCL required the as-constructed details of the connections between the EWL slab and the eastern diaphragm wall, and requested Leighton to provide such details. I refer to the Document Transmittal Form from Michael Fu of MTRCL to Mr. Jon Kitching of Leighton (1112-DTF-CM(SCLC)-GEN-000262) dated 20 June 2018, which instructed Leighton to "provide updates and changes based on the latest BD Approval Drawings (copy attached) for our further preparation and submission of Final Amendment accordingly".

- 101. Around the same time as MTRCL's Projects Team was locating the as-constructed details, Philco Wong and James Ho went through the photographs taken by MTRCL site inspectors and engineers during the construction of the EWL slab and compared the same with the working drawings approved at the time of the construction of the EWL slab. They found that in some locations along the length of the EWL slab in Areas B and C, an alternative construction detail had been adopted to connect the top of the EWL slab to the eastern diaphragm wall. In light of their findings, I also realised that while the number of couplers connecting the EWL slab to the east and west diaphragm walls was approximately 23,500 according to the approved drawings, the actual number of couplers installed was less than that as a result of the change of construction detail.
- 102. Given that the construction team only had 14 days to gather the information for the MTRCL Report, it was regrettable that the construction team forgot to take into account the change in construction detail to the east diaphragm wall. Such errors were committed under immense time pressure and were unintentional.
- 103. After being made aware of the above findings for the first time, I undertook a detailed review of the available photographs to verify the as-constructed details of the EWL slab to the east diaphragm wall at all locations in Areas B and C. I also pressed Leighton to provide the as-constructed details of the connections between the EWL slab and the eastern diaphragm wall. In this respect I refer to the letter from Michael Fu of MTRCL to Mr. Jon Kitching of Leighton dated 17 July 2018 (Ref: 1112-COR-CM(SCLC)-STO-000035).
- 104. However, by this stage Leighton had still not provided the requested as-constructed details and in this respect I refer to James Ho's email to Justin Taylor of Leighton dated 19 July 2018 at 6:15 pm. As such, I asked (1) James Ho to prepare a detailed timeline of all information within the files of MTRCL and whatever little information Leighton was willing to disclose at the time associated with the EWL slab design, design changes and all construction details; and, (2) Kit Chan to lead a team of engineers and inspectors to carry out a detailed search for all available records and photographs in this regard. To refresh my memory, I have re-read an email I sent to Kit Chan and James Ho on 24 July 2018 at 7:33 am which stated:

"For the timeline we need to understand and explain the events that occurred probably from June to September 2015 that resulted in the change from the top coupler design detail at the east DWall to the construction detail adopted, to explain the following, with the necessary historical documentation: Who instigated the changes? Leighton?

Why were the changes required?

The Leighton submission process for the proposed changes?

The MTR approval process for the changes?

Why was MTR DM team not involved in the change process?

Why was there no BD design amendment issued for the change?

Evidence to support which detail was used at each slab location?

For Area B, because of the temporary steel under pinning frame prevented the use of the revised detail, again we need to be able to demonstrate clearly which detail was adopted and at which locations?

We need to action the above today."

- 105. Kit Chan collated a full set of available photographs and obtained copies of the reinforcement bending schedules. My review of the photographs and reinforcement bending schedules confirmed that the steel reinforcement bars in the upper part of the EWL slab in certain locations were not connected to the east diaphragm wall by the couplers that had been previously installed at the top of the east diaphragm wall during the construction of the diaphragm wall. Instead, the photographs showed that in certain locations of the top section of the east diaphragm wall the concrete had been broken down and removed in varying depths from approximately 200 to 500 mm (including the concrete, steel reinforcement and the couplers) and that the steel reinforcement, with conventional lapping of the reinforcement where required, across the top of the broken down diaphragm wall and into the external OTE base slab outside the EWL slab and diaphragm wall.
- 106. I wish to add that I visited the site of Contract 1112 on a regular weekly basis and observed concrete breaking works to the top of both the east and west diaphragm walls as part of the construction process. However, until James Ho told me about his and Philco Wong's findings as mentioned in paragraph 101 above, I was not aware of any change in construction detail at the connection between the top of the EWL slab to the eastern

diaphragm wall. I was not told by anyone nor informed in any way of such a change of construction detail.

- 107. That said, I am of the view that the replacement of steel bars connected with a coupler by one full length steel bar is a minor change in construction detail which does not affect the
 overall structural stability of the diaphragm walls and the EWL slab. It was a better engineering solution and an enhancement to the quality of the construction.
- 108. Given that Contract 1112 was a target-cost contract, Leighton was obliged to compile a set of as-built drawing records for the work it carried out and submit the same to MTRCL.⁶ Leighton therefore was (at least ought to be) in a position to provide MTRCL with the information that MTRCL required. Leighton's failure to provide such details was not helpful at a time when MTRCL was under immense time pressure to provide details to the Government, conduct a load test (which meant that we needed to find out the details of the actual state of construction) and submit the updated working drawings to BD. We therefore had no choice but to ascertain the extent of the change in construction detail based on MTRCL's then available records and the memories of a limited number of staff involved in the construction at the time.

Item 11(i): Explain and confirm how often or common it was that Leighton and its subcontractors would encounter difficulties in the steel fixing works.

Item 11(1): Confirm whether Leighton, its subcontractors and/or their respective workers had referred such difficulties and issues to Your Company and if so, please identify (with particulars) the entities and/or person(s) who referred the difficulties and issues to Your Company and describe the replies and instructions given by Your Company to resolve the difficulties and issues. Please state whether the replies and instructions were given orally or in writing. If orally, identify by whom and to whom the same were made, when and in what circumstances. If in writing, please produce all relevant documents.

109. I confirm that Leighton, its sub-contractors and/or their respective workers have not referred any such difficulties and issues to myself.

Item 11(n): Confirm whether Your Company was aware that instructions were given by Leighton for the steel bars to be shortened and cut in order to overcome the said difficulties and issues. If so, at which point in time did Your Company become aware of such instructions.

⁶ Clauses G15.4.1 and G15.4.2 of General Specification.

110. I confirm that I was not aware of any instructions being given by Leighton for the steel bars to be shortened and cut.

Item 11(p): Explain whether it is common in the construction of diaphragm walls and platform slabs for steel bars to be shortened and cut and confirm whether such shortening and cutting of steel bars within the diaphragm walls and platform slabs is acceptable and in compliance with Requirements, Standards and Practice.

- 111. It is common and necessary to shorten and/or cut the stock lengths of steel reinforcement bars at the main site bar bending yard after the reinforcement bars are delivered to the construction site. I say this because the steel bars need to be shortened to the appropriate length to suit the design for the reinforcement works to be carried out on the construction site. However, I must stress that where it is necessary to shorten and/or cut the steel bars, only the non-threaded ends of the steel bars are to be cut.
- 112. In relation to the cutting of the threaded sections of steel reinforcement bars, it is not common and should not be done.

Item 13(a): Comment on Mr. Poon's allegations.

- 113. As stated in paragraph 70 above, I had no knowledge about the alleged Defective Steel Works until they were first reported by Jason Poon to Leighton on 6 January 2017. Prior to that, nobody raised any issues relating to the alleged Defective Steel Works during the meetings or site visits that I attended or on any other occasions.
- 114. I did occasionally run into Jason Poon on site. During those occasions when we met, Jason Poon did not mention any issues about the alleged Defective Steel Works. On the few occasions that we talked, we discussed the adequacy of the resources provided by China Technology and performance issues in relation to the safety and quality of China Technology's works.

Item 13(b): Confirm whether Your Company was aware that steel bars were being shortened or cut by hydraulic cutters on site, and if so, what were the reasons for using a hydraulic cutter to carry out such work.

115. During my regular site visits, I saw workers shortening, cutting and bending of the stock lengths of steel reinforcement bars using the standard hydraulic cutting and bending machines at the main site bar bending yard after the reinforcement bars were delivered to the construction site. This is normal industry trade practice. However, I was not aware and did not see any of the threaded steel reinforcement bars being cut by hydraulic cutters or by any other manner.

- 116. Finally, I would like to mention the following:
 - (a) The events in question and which form the subject matter of the Commission of Inquiry took place several years ago and my recollection of every detail is not therefore perfect.
 - (b) I would like to add, therefore, that there may be matters referred to or stated in other documents which have not been recently placed before me. To that extent, I would be happy to comment on any such other materials at a later date if and when identified and placed before the Commission of Inquiry.

Dated 14th September 2018 AIDAN GERALD ROONE

Corrigendum to the Witness Statement of Aidan Gerald Rooney dated 14 September 2018

Page	Paragraph	Content
B202	61	Replace "In this respect I refer to PIMS (Monitoring of Site Works) at paragraph <u>5.1.2</u> " with "In this respect I refer to PIMS (Monitoring of Site Works) at paragraph <u>5.7</u> "