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

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FIRST WITNESS STATEMENT OF KARL SPEED

I, KARL SPEED, of 39/F, Sun Hung Kei Centre, 30 Harbour Road, Hong Kong say as follows:

1. I am the General Manager of 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. I am authorised to make this statement in response to Lo & Lo's letter dated 24th July 2018 ("**Letter of 24th July 2018**") in my capacity as a director of Leighton.

3. I set out below a response to each of the 16 requests made in the Letter of 24th July 2018.

4. 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.

Summary of Leighton's Evidence

5. Throughout its investigations in January and February 2017[1], its recent reconsideration of the relevant allegations that are of interest to the Inquiry, and the preparation of its evidence for the Commission, Leighton has found no evidence of any instructions being given by Leighton to cut off or shorten the threaded ends of reinforcement bars.[2]

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[1] This investigation arose out of an email sent by Jason Poon of China Technology (as defined below) on 6th January 2017. Please refer to the witness statement of Anthony Zervaas and paragraphs 78 and 79 below for more details.

[2] In this statement (and unless otherwise stated), any reference to the cutting or shortening of the threaded ends of reinforcement bars is intended to refer to the cutting or shortening of the threaded ends of reinforcement bars that were installed in, or intended to be installed, in the platform slabs and diaphragm walls.

6. What Leighton did discover was that there had been three occasions from around September 2015 to December 2015 when reinforcement bars with threaded ends cut off were identified and rectified during joint inspections by Leighton and MTRCL.[3] Leighton knows of no more than eight of these defective reinforcement bars that were identified and then promptly rectified. These defective reinforcement bars were all located in Area C of the EWL Slab. MTRCL's engineers / Inspectors of Works ("**IoW**") were present at the time of these incidents and inspected the rectification work. Leighton also issued a Non-Conformance Report ("**NCR**") to the relevant subcontractor (shortly after the third occasion) in order to address these few defective reinforcement bars and ensure that the issue did not arise again. Thereafter, no further defective reinforcement bars were identified in Area C of the EWL Slab.

7. There is no evidence of any defective reinforcement bars being identified in other areas of the platform slabs and diaphragm walls.

Response to Request 1 to the Letter of 24th July 2018

8. The relevant text in Request 1 of the Letter of 24th July 2018 is as follows:

> "*Describe and explain the **respective roles duties and responsibilities** of Your Company and MTRCL 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, supervisory, monitoring, inspection and reporting roles in ensuring the compliance, quality, safety and integrity of the construction works. Please confirm whether Your Company has carried out works to construct the steel bars and steel bar structures within the diaphragms wall and platform slabs and describe Your Company's works and involvement thereon. Please adduce the relevant **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.*"

[3] Please refer to the witness statement of Edward Mok and to paragraphs 56 to 66 below.

9. Leighton entered into a contract with MTRCL dated 7 March 2013 for the construction of the Hung Hom Station and Stable Sidings ("**Contract**"). This is a target cost, construct only contract,[4] where the design for the permanent works was carried out by MTRCL's Designated Design Consultant ("**DDC**"), Atkins. A copy of this contract has been disclosed to the Commission and is numbered LCAL.R1.01 to LCAL.R1.14 in the Index of Documents Disclosed by Leighton ("**Index**").

10. Leighton carried out the works, through its subcontractors (as referred to below), to construct the diaphragm wall and platform slabs of the Project, including to install the reinforcement bars and structures therein.[5] The key areas of the Project that involved a connection between diaphragm walls and platform slabs are the East West Line platform slab ("**EWL Slab**") and the North South Line platform slab ("**NSL Slab**").[6]

11. The respective roles, duties and responsibilities (including respective construction, supervisory, monitoring, inspection and reporting roles) of Leighton, MTRCL and the relevant subcontractors in relation to the EWL Slab and NSL Slab is summarised below.

12. In relation to the EWL Slab and NSL Slab, Leighton was responsible for:

    (a) construction of the works in accordance with the working drawings issued under the contract by MTRCL.[7] This involves breaking the works down into defined sub-contract packages, tendering and letting the defined sub-contract packages, developing suitable method statements for the construction of the works, and supervising the construction of the works;

    (b) ensuring that the works were constructed in a safe manner (including the design and implementation of any required temporary works); and

    (c) providing quality supervision of the works during construction.

[4] In saying this, Leighton acknowledges that it had some minor design-related obligations under the contract.
[5] Leighton also used its own workers to perform various tasks on the construction of the platform slabs and diaphragm walls (such as logistics support, hydro demolition work and excavations). Leighton's workers were not involved in the installation of the reinforcement in the platform slabs and diaphragm walls.
[6] At some areas of the EWL Slab, the slab sits on top of the diaphragm wall. Leighton will discuss this further in its response to the requests made in Lo & Lo's letter dated 10th August 2018.
[7] Leighton will further address design-related obligations in its response to the requests made in Lo & Lo's letter dated 10th August 2018.

13. In relation to the EWL Slab and NSL Slab, MTRCL was responsible for:

(a) the management and design for the works (as performed by their DDC, Atkins),

(b) worker safety (in MTRCL's role as "Competent Person" ("**CP**") for the Project);

(c) co-ordination with the Buildings Department in relation to submission of the design for consultation (as CP for the Project) ;

(d) issuance of working drawings to Leighton for construction, including changes to the working drawings as is required from time to time; and

(e) supervision, inspection and approval of the works on site at key "hold points" (as explained at paragraphs 29 to 31 below) before Leighton could proceed with the next stage of works.

14. Fang Sheung Construction Company ("**Fang Sheung**") is the subcontractor that installed the reinforcement in the EWL Slab and NSL Slab. It was supervised by, reported to and took instructions from Leighton. From time to time, Fang Sheung also communicated directly with MTRCL's staff.

15. China Technology Corporation Limited ("**China Technology**") is the subcontractor that constructed the formwork and performed the concreting for the EWL Slab[8] and NSL Slab. It was supervised by, reported to and took instructions from Leighton. From time to time, China Technology also communicated directly with MTRCL's staff.

16. Intrafor HK Ltd ("**Intrafor**") is the subcontractor that constructed the diaphragm walls.

17. K and F Construction Co. Ltd ("**K and F**") is the subcontractor responsible for the installation and removal of the temporary steel strutting.

Response to Request 2

18. The relevant text in Request 2 of the Letter of 24th July 2018 is as follows:

[8] China Technology only worked at Areas HKC, Area B and Area C of the EWL Slab.

"*Where contracts are adduced, please* ***identify the relevant sections, parts*** *and contents pertaining to the diaphragm walls and platform slabs construction works at the Hung Hom Station Extension and the system of supervision, monitoring, inspection and reporting to ensure the compliance, quality, safety and integrity of such works.*"

19. In addition, similar and overlapping requests have been made in the letter of Lo & Lo dated 1st September 2018 ("**Letter of 1st September 2018**"). Leighton has prepared a detailed response to the Letter of 1st September 2018, which is produced and marked **Exhibit "LCAL-1"**.

20. The Contract includes various sections and parts which generally relate to the construction of the works. The sections and parts of the Contract which are relevant to quality and standards include (but are not limited to):

    (a) Clause 57 (Plant Materials and Workmanship); and

    (b) Particular specification.

21. A copy of the subcontract between Leighton and Fang Sheung has been disclosed to the Commission and is numbered LCAL.R1.164 in the Index. A copy of the amendment of the subcontract and the deed of subcontract have also been disclosed to the Commission and is numbered LCAL.R1.165 and LCAL.R1.166. In this subcontract, there are many sections and parts which generally relate to the construction of the works, which include the diaphragm walls and platform slabs. The sections and parts of the subcontract with Fang Sheung which are most relevant include (but are not limited to):

    (a) Clause 3 (Main Contract);

    (b) Clause 13 (Compliance laws and regulations); and

    (c) Clause 23 (Quality System).

22. A copy of the subcontract between Leighton and China Technology has been disclosed to the Commission and is numbered LCAL.R1.163 in the Index. In this subcontract, there are many sections and parts which generally relate to the construction of the works,

which include the diaphragm walls and platform slabs. The sections and parts of the subcontract with China Technology which are most relevant include (but are not limited to):

(a) Clause 3 (Main Contract);

(b) Clause 13 (Compliance laws and regulations); and

(c) Clause 23 (Quality System).

23. Leighton has disclosed to the Commission the relevant drawings in relation to diaphragm walls and platforms slabs (numbered LCAL.R.1.191 to LCAL.R.1.193 in the Index). These drawings (including revisions and amendments thereto) are listed in an accompanying table.

Response to Request 3

24. The relevant text in Request 3 of the Letter of 24th July 2018 is as follows:

"*With reference to an Organisation Chart of Your Company,* ***describe and explain the roles and responsibilities of each persons in Your Company involved in the construction, 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.*"

25. Leighton has disclosed to the Commission:

(a) a list of key staff (both for employees and former employees) (numbered LCAL.R3.01 and LCAL.R3.02 in the Index); and

(b) the Organisational Charts for Leighton's staff on the Project at various dates (numbered LCAL.R3.06 to LCAL.R3.14 in the Index).

26. As the main contractor for the Project, Leighton was principally responsible for engaging, managing and supervising the subcontractors and Leighton's own directly employed workers who also performed onsite work.[9] I understand that the Commission is interested in Leighton's staff who managed and supervised the subcontractors that constructed the EWL Slab and NSL Slab, especially the installation of reinforcement and the connection of reinforcement bars in these platform slabs to the reinforcement bars in the diaphragm walls. The key staff members involved from Leighton are noted in the list of key staff (both for employees and former employees) (numbered LCAL.R3.01 to LCAL.R3.02 in the Index). This document also contains details of the roles and responsible areas of these individuals.

27. These Leighton staff worked in either the engineering construction team, engineering design team or the site supervision team. The engineering construction team was responsible for method statement preparation, programming, procurement, management of resources, supervision and inspection of the works, sequencing of the works and worker safety. The engineering design team was responsible for dealing with design aspects, including temporary works design and approvals. The site supervision team was responsible for the day to day management of the site including logistics management, resource management and worker safety.

28. The engineering construction team was responsible for satisfying itself and obtaining the MTRCL's approval of the works and authorisation to proceed with the next step in the construction process. The primary means by which Leighton's engineers obtained MTRCL's approval and authorisation to proceed was by requesting formal inspections by, and conducting formal inspections with, MTRCL. The two critical inspections in relation to the installation of reinforcement were:

    (a) the reinforcement bar (or "rebar" in short) fixing inspection, which was jointly conducted by a Leighton engineer and an MTRCL engineer; and

[9] Leighton also used its own workers to perform various tasks on the construction of the platform slabs and diaphragm walls (such as logistics support, hydro demolition work and excavations). Leighton's workers were not involved in the installation of the reinforcement in the platform slabs and diaphragm walls.

(b) the pre-pour check inspection, which was jointly conducted by a Leighton engineer and an MTRCL IoW.

29. A system of "hold points" were established to ensure that work stopped at key points in the construction process to allow for (among other things) inspections and approval of the works by Leighton and MTRCL. This system is described in the Inspection and Test Plan ("**ITP**") for each area.[10]

30. A hold point can only be lifted after the inspection is completed. Hold points were imposed at two key points (so far is relevant to the Inquiry):

(1) after the installation of the reinforcement; and

(2) prior to concrete being poured.

31. The two hold points are key because it was at these time that Leighton and MTRCL conducted the formal inspections for rebar fixing and pre-pour checks. These hold points were only lifted after Leighton and MTRCL approved the works and authorised the subcontractor to proceed. The hold points would not have been lifted if any defective reinforcement bars were identified (i.e. bars not properly connected to couplers).

32. Leighton confirms that all formal inspections in relation to the reinforcement in the platform slabs and diaphragm walls were completed. In particular, MTRCL provided its approval of the installation of the reinforcement (including, where relevant, the connections between reinforcement bars and couplers) in the platform slabs and diaphragm walls and authorised concrete to be poured.

Response to Request 4

33. The relevant text in Request 4 of the Letter of 24th July 2018 is as follows:

*"Please provide as an exhibit to the witness statement a **list of the workers** (with names and contact details) engaged by Your Company and Your Company's sub· contractors who were involved in the construction of the steel structures within the diaphragm walls*

[10] As approved by MTRCL.

and platform slabs. Identify the type of work undertaken by such workers. Please provide the site diaries and/or workers attendance records of Your Company and Your Company's sub-contractors in relation to the construction of the diaphragm walls and platform slabs under Contract 1112."

34. Leighton has disclosed to the Commission a list of workers from Leighton, Fang Sheung and China Technology who were involved in the construction of the diaphragm walls and platform slabs (numbered LCAL.R4.04 in the Index).

35. Leighton's relevant staff from its engineering construction, engineering design and site supervision teams have also been identified in the list of key staff that was disclosed to the Commission in response to Request 3 of the Letter dated 24th July 2018 (numbered LCAL.R3.01 and LCAL.R3.02 in the Index).

36. Leighton has disclosed to the Commission a copy of the documents representing the site diary and attendance records of Fang Sheung (numbered LCAL.R4.104 to LCAL.R4.149 in the Index), and China Technology (numbered LCAL.R4.30 to LCAL.R4.66).

Response to Request 5

37. The relevant text in Request 5 of the Letter of 24th July 2018 is as follows:

"*Describe and explain the* ***steps, procedures and timeline in the construction and completion*** *of 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 MTRCL, Your Company, 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.*"

38. The typical sequence for the construction of the diaphragm wall and platform slabs (with the party responsible for each step listed in brackets) is as follows:[11]

[11] This sequence relates to the relevant areas of the EWL Slab and NSL Slab.

(a) Diaphragm walls constructed by Leighton's specialist foundation sub-contractor (Infrafor);

(b) Excavation down to -0.18mPD[12], which was the typical formation level of the EWL Slab (Leighton);

(c) Removal of "over casting" of top portion of diaphragm wall and formation of shear key in diaphragm wall by hydro-jetting (Leighton);

(d) Placement of blinding concrete and construction of formwork for the base of the EWL Slab (China Technology);

(e) Installation of reinforcement for EWL Slab (Fang Sheung);

(f) Inspection of the reinforcement fixing for EWL Slab (i.e. both routine informal inspections and the formal inspection for rebar fixing at a hold point) (Leighton and MTRCL).

(g) Formal inspection for pre-pour check and survey check at a hold point, prior to pouring of the concrete for the EWL Slab (Leighton and MTRCL);

(h) Pouring of the concrete for the EWL Slab and concrete curing (China Technology).

(i) Pumping test to verify effective water cut off by the as-constructed walls (Intrafor).

(j) Submission of as-built record plans for diaphragm walls and pumping test results by Leighton to MTRCL, and from MTRCL to Buildings Department ("**BD**") (Leighton / MTRCL);

(k) After concrete has cured, excavation to intermediate excavation level (defined on the BD consultation temporary works drawings), and installation of temporary steel strutting between diaphragm wall and soffit of EWL Slab (K and F);

(l) Excavation to final formation level for NSL Slab (Leighton);

(m) Placement of blinding concrete and formwork for the base of the NSL Slab (China Technology);

(n) Installation of reinforcement for NSL Slab (Fang Sheung);

(o) Inspection of the reinforcement fixing for NSL Slab (i.e. both routine informal inspections and the formal inspection for rebar fixing) (Leighton and MTRCL).

[12] Metres principal datum

(p) Formal inspection for pre-pour check and survey check prior to pouring of the concrete for the NSL Slab (Leighton and MTRCL);

(q) Pouring of the concrete for the NSL Slab and concrete curing (China Technology); and

(r) Removal of temporary steel strutting (K and F).

39. The works described above were constructed in accordance with construction method statements developed by Leighton (with the exception of the diaphragm wall works for which the method statement was developed in collaboration with Intrafor). The works were witnessed, inspected and approved at each hold point by Leighton and MTRCL in accordance with the ITP (as approved by MTRCL). The works were also inspected on a continuous daily basis by MTRCL's engineers / IoWs, who carried out formal inspections at each stage of the works before granting their approval to proceed with the next stage of the works.

40. The subcontractors reported to, were supervised by and took instructions from Leighton. From time to time, they also communicated directly with MTRCL. This reflected the fact that MTRCL's engineers / IoWs were on site conducting their own supervision of the works (i.e. in addition to the supervision provided by Leighton).

41. The timeline for the construction of the works is as follows:

(a) The first diaphragm wall panel was concreted in August 2013, and the final diaphragm wall panel concreted in June 2015;

(b) The first concrete pour for the EWL Slab was in May 2015, and the final concrete pour was in August 2016;[13] and

(c) The first concrete pour for the NSL Slab was in September 2015, and the final concrete pour was in May 2016.

Response to Request 6

42. The relevant text in Request 6 of the Letter of 24th July 2018 is as follows:

[13] China Technology worked on HKC, Area B and Area C of the EWL Slab. The first pour handled by China Technology for the EWL Slab was in July 2015.

"Explain with reference to the terms of Contract 1112, sub-contract(s), approved plans, drawings, laws and regulations, practice notes, handbooks, guidelines, circulars, industry standards, practice and requirements (the ***"Requirements, Standards and Practice") how the steel bars in the diaphragm walls and platform slabs should be installed and connected*** *to ensure the compliance, quality, safety and integrity of the structures. Please identify and provide the authorities relied on by Your Company on this topic."*

43. The following documents set out the standards and requirements for the installation of the reinforcement bars in the diaphragm walls and platform slabs:

(a) The drawings for the reinforcement (which have been revised in some cases);

(b) Appendices of Buildings Department's letters of consultation for the works ("**BD Letters**") which set out the supervision obligations for the Reinforced Concrete Works and Mechanical Coupler Works;

(c) Quality Supervision Plan ("**QSP**") for installation of couplers for diaphragm wall and barrettes (ref. 1112-CSF-LCA-CB-000007A);

(d) Site Supervision Plan Rev.1 ("**SSP**") attached in MTRCL's letter to the Buildings Department (ref. 1112-COR-DM/SCL-STO000876), dated 18 June 2015;

(e) The Method Statements for the relevant areas of the site;

(f) The Inspection Test Plans for the relevant areas of the site;

(g) Materials and Workmanship Specification for Civil Engineering Works, Section 10 Steel Reinforcement;

(h) Bosa (coupler manufacturer/supplier) Technical and Quality Assurance Manual;

(i) HK Code of Practice for the Structural Use of Concrete 2013 ("**CoP**");[14] and

(j) Practice Note for Authorised Persons PNAP APP-68.[15]

[14] The lapping of reinforcement bars is designed to transmit forces from one bar to another where it is not possible to provide continuous (non-lapped) reinforcement bars. Clause 8.7 of the CoP defines the requirements for laps. Clause 3.2.8 of the same CoP defines the requirements for couplers. This clause states that couplers may be used as an alternate for tension or compression laps (subject to the coupler meeting specified minimum test requirements). It follows from this clause that couplers (subject to satisfying the test criteria) and lapped bars are interchangeable. In summary, couplers or laps should only be provided where it is not possible to provide continuous (ie. non-lapped and non-coupled reinforcement), as a continuous bar presents a more direct load path for the transmittal of forces within the reinforcement.

44. Leighton has disclosed a copy of these documents to the Commission (respectively numbered LCAL.R.1.191 to LCAL.R.1.193, LCAL.R1.194, LCAL.R1.195, LCAL.R1.196, LCAL.R5.01 to LCAL.R5.13, LCAL.R1.100 to LCAL.R1.102, LCAL.R6.01 to LCAL.R6.04, LCAL.R6.05 and LCAL.R6.06 in the Index).

45. In summary, the usual procedure required to install reinforcement bars in the diaphragm walls is as follows:

(a) Reinforcement bars of varying diameters were cut, bent and threaded in accordance with the lengths and shapes detailed on the approved reinforcement shop drawings;

(b) Due to the limited headroom under the existing podium structure the diaphragm wall reinforcement cages were required to be restricted in height / length to a maximum of approximately 3.5 metres. Reinforcement couplers were used to make the connections between the main vertical bars of each reinforcement cage. No allegations have been made in relation to these connections between the couplers and reinforcement cages;

(c) The lower cages of the diaphragm wall panels, primarily those below the fourth cage were prefabricated on horizontal reinforcement jigs located in the onsite rebar fabrication yard;

(d) The prefabricated reinforcement cages were transported to the already excavated diaphragm wall trench for installation;

(e) The diaphragm wall cage was incrementally built cage by cage from the bottom to the top;

(f) The lower cages were lowered into the trench using a crane and then supported off the diaphragm wall guide wall (temporary concrete structure at ground surface) to permit the connection of the next cage;

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[15] This Practice Note relevantly states: "*All cantilevered structures should be cast monolithically with and at the same time as the directly supporting members. Construction joints should not be located along the external edge of the supporting members. In case this is unavoidable, any alternative construction method must be submitted for prior approval. Such method should ensure that the finished product would be able to attain a structural strength no less than that provided by monolithic construction, and that it would not allow the ingress of water through the joint*".

(g) The next cage was lifted into place using a crane to approximately line up all vertical main bar reinforcement couplers;

(h) The cage was manoeuvered by hand and all couplers fastened to complete the connection;

(i) If the bars did not precisely line up to permit an acceptable connection, the main bars on the cage suspended crane were loosened to allow minor adjustments to precisely line up the bars;

(j) The final top four cages were constructed in a piece meal fashion (i.e. bar by bar) at the trench location. This was required due to the difficulty of precisely lining up the required number of main rebars when the reinforcement design required multiple layers of reinforcement in one face of the panel;

(k) Coupler bars (threaded anchor bars with couplers) for the NSL Slab and EWL Slab were precisely positioned within the diaphragm wall cage at the designed level to permit the slab connections;

(l) All cages were inspected by Intrafor's engineers, Leighton's engineers and MTRCL's IoWs prior to lowering into the trench;

(m) Upon verification of the top level of cages and inspection of all cages installed, the concreting could commence.

46. In summary, the usual procedure required to install reinforcement bars in the platform slabs is as follows:

(a) The reinforcement in the platform slabs was installed from the bottom layers (B1-B5) to the top layers (T5-T1). The general spacing of the rebars in the platform slabs was 150 millimetres centre to centre;

(b) Threaded bars were inserted into the bottom layer (layer B1) of the couplers cast into the diaphragm wall panels;

(c) The main B1 transverse bars were then placed and lapped with the installed threaded bars. Cover was maintained using spacer blocks between the rebar and the base formwork;

(d) Longitudinal B2 bars were then installed resting onto the B1 layer. The B2 bars were installed into the couplers located at the construction joints of previously cast adjacent bays;

(e) The next layer of transverse threaded bars (layer B3) were installed into the couplers in the diaphragm wall;

(f) Longitudinal layer B4 bars were then installed, this process was followed up to the required layers of bars as determined in the design drawings;

(g) The bottom layers of reinforcement were inspected by Leighton's engineers and the MTRCL's engineers;

(h) Temporary rebar chair supports were installed to support the top layers of reinforcement of the platform slab. These were installed at regular spacing and secured off the installed bottom layers of rebar;

(i) The bottom layer of top reinforcement was installed first, and subsequent layers were installed on top;

(j) Layers T5 / T3 and T1 were secured either to couplers or as straight through bar anchored in to the cantilevered OTE slab on the eastern wall of Area B and C;

(k) Layers T2 / T4 etc. the longitudinal bars screwed into cast in couplers of adjacent bays or left up against the wall formwork of the bay under construction;

(l) Shear ligature rebars were installed between the top and bottom layers of rebar;

(m) Trimming bars around openings installed; and

(n) Final inspection of top rebar carried out by Leighton's engineers and the MTRCL's engineers.

Response to Request 7

47. The relevant text in Request 7 of the Letter of 24th July 2018 is as follows:

"*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. Describe and explain in detail how* ***physical inspections*** *of the steel fixing works were carried out in order to ensure compliance, safety and integrity of the diaphragm walls and platform slabs. Please adduce all related manuals, records and documents on this topic.*"

48. I refer to the documents listed in paragraph 43 above (i.e. as provided in response to Request 6 above). The systems and measures that were in place to ensure that the

reinforcement was properly installed in the diaphragm wall and platform slabs include the following:

(a) Material testing for reinforcement, concrete and couplers and all other permanent materials cast into the works in accordance with the Contract requirements;

(b) The appointment of a specialist, experienced and licensed diaphragm wall foundation subcontractor;

(c) The appointment of an experienced subcontractor for the installation of steel reinforcement works;

(d) The appointment of coupler supplier and thread manufacturer that is approved by the BD;

(e) An approved supervision system[16] was implemented under which Leighton's engineers and supervisors (working full-time and on site daily) were responsible for the supervision of the subcontractors who in turn were responsible for installing the reinforcement and the inspection of the completed reinforcement works (including the connections between reinforcement bars and couplers);

(f) Adherence to the hold points required within the approved ITP for the diaphragm wall works. A hold point is where construction must be stopped. A hold point can only be lifted after the inspection is completed and approval to proceed is granted. The ITP required a hold point and the joint inspection by Leighton and MTRCL of every reinforcement cage for compliance with the drawings/specifications and coupler connections prior to the structure being lowered into the slurry trench (i.e. the excavated area into which concrete will be poured after the reinforcement cage has been installed); and

(g) Adherence to the hold points required within the approved ITP for the platform slab works. As explained in paragraph 29 above, there are two key hold points in relation to the construction of platform slabs: (1) after installation of

[16] Approved by MTRCL. Leighton's Site Supervision Plan was also submitted to BD.

reinforcement; and (2) prior to concrete being poured. The ITP required a joint inspection by Leighton and MTRCL at these hold points to inspect the reinforcement prior to the pouring of concrete. The hold point is only lifted after Leighton and MTRCL approve the works and authorise the subcontractor to proceed.

49. Leighton's engineering and site supervision teams inspected the reinforcement works as they were being installed by the subcontractor (i.e. routine inspections). As noted, Leighton's engineers also conducted two formal inspections of the reinforcement with MTRCL (i.e. the formal inspections for rebar fixing and pre-pour check). The rebar fixing inspection (conducted jointly by Leighton and MTRCL) would be conducted for the lower layer (before the subcontractor would proceed to install the upper layer of reinforcement) and then for the upper layer (after the subcontractor has finished installing the upper layer). As a result, the formal inspection for rebar fixing was effectively done in two separate inspections for those bays where two layers of reinforcement were installed.

50. Request for Inspection/Survey ("**RISC**") forms were used to document Leighton's request for a formal inspection and to record MTRCL's approval of the works and authorisation to proceed after an inspection. The established protocol on the Project was that Leighton would rely upon the verbal approval given by MTRCL's engineer / IoW after an inspection. This was because it usually took days or weeks (and sometimes much longer) for MTRCL to return the completed RISC forms to Leighton.

51. The following items would be checked during routine inspections of the reinforcement by Leighton and the formal inspections for rebar fixing with MTRCL:

    (a) Spacing of the reinforcement bars;

    (b) Size of the reinforcement bars;

    (c) Lap lengths;

    (d) Connections between reinforcement bars and couplers; and

(e) Trimming bar details.

52. The connections between reinforcement bars and couplers were inspected by Leighton's engineers visually. The supplier of the couplers recommends that a visual inspection is conducted on such connections by checking the number of threads on the reinforcement bars that are visible (i.e. that are not screwed into coupler). There are different recommended inspections for Type A and Type B thread types. Please refer to the Bosa (coupler manufacturer/supplier) Technical and Quality Assurance Manual (numbered LCAL.R6.01 to LCAL.R6.04 in the Index) for more details.

53. Leighton's engineers complied with the supplier's recommendations by looking at the connections between the bars and couplers to confirm that the threaded ends of the bars were either fully screwed into the couplers or no more than two threads were visible (i.e. the other threads were screwed into the coupler).

54. Both a Leighton engineer and a MTRCL engineer / IoW would attend formal inspections for rebar fixing and pre-pour checks. However, there were multiple Leighton engineers and site supervision staff assigned to supervise the subcontractors' work in each area. These other engineers and staff were on site on a daily basis. As a result, they were monitoring the subcontractors and generally ensuring that Leighton's systems were being followed. The MTRCL's engineers and IoWs were also performing the same function. They were fully aware of the works being undertaken and the progress being made with the installation of the reinforcement. This overlapping system of supervision by Leighton and MTRC ensured that the relevant hold points were observed by the subcontractors, formal inspections took place on the reinforcement installed in the platform slabs and diaphragm walls and no concrete was poured without both Leighton and MTRCL inspecting and approving the works and then MTRCL authorising Leighton to proceed.

Response to Request 8(a)

55. The relevant text in Request 8(a) of the Letter of 24th July 2018 is as follows:

"Explain and confirm whether Your Company has any knowledge of the Defective Steel Works 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."*

56. From around September to December 2015, during the supervision and inspection of the installation of the reinforcement for EWL Slab, a very small number of reinforcement bars with the threaded ends cut off were identified in Area C of the EWL Slab. These defective reinforcement bars were identified during joint inspections conducted by Edward Mok (Leighton's engineer) and MTRCL's engineer/IoW. Edward ensured that the defective bars were promptly replaced by Fang Sheung and the replacement bars were properly connected to the couplers.[17]

57. On the three occasions that this happened, Leighton's engineers also provided warnings to Fang Sheung at the time.[18] Leighton therefore followed the normal workflow process of giving instructions to the sub-contractor to remedy any defective work, supervised and checked that the remedial work was completed and then cautioned the subcontractor to avoid the same issues in future. This reflects the standard industry approach to dealing with defects on a construction project in real time.

58. The first occasion when Edward identified defective reinforcement bars was in or around September to October 2015. Edward recalls identifying a single defective reinforcement bar during a formal inspection of rebar fixing with a MTRCL engineer. He instructed Fang Sheung to replace the bar, watched the rectification work and inspected the connection between the replacement bar and the coupler at that time.

59. The second occasion when Edward identified defective reinforcement bars was in or around October to November 2015. Edward recalls identifying one or two defective reinforcement bars on that occasion during a formal inspection of rebar fixing with a MTRCL engineer. Once again, he instructed Fang Sheung to replace the bar(s), watched

[17] Please refer to the witness statement of Edward Mok.
[18] Please refer to the witness statements of Edward Mok and Andy Ip.

the rectification work and inspected the connection between the replacement bar(s) and the coupler(s) at that time.

60. On these first two occasions, the three defective reinforcement bars that were identified were rectified at the time and were treated as "work in progress" rectifications. This type of "on the spot" rectifications when a defect is identified and quickly remedied are not usually documented. That is the approach that Edward adopted on those first two occasions. As such, Edward did not complete any paperwork to record the rectification. On both occasions, Edward instructed Fang Sheung not to allow the defect to happen again.

61. The third occasion was on 15th December 2015. On that date, Edward and MTRCL's Assistant IoW (Andy Wong) discovered five reinforcement bars during a routine inspection of the area for Pour No.C3-2 / C3-3. Edward then instructed Fang Sheung to stop work and checked the reinforcement bars in the area. Neither Edward nor MTRCL's Assistant IoW identified any other defective reinforcement bars. Leighton then ensured that Fang Sheung replaced the defective bars and checked that the replacement bars were connected to the couplers. On the same day, MTRCL's IoW inspected the rectification work and confirmed that it was satisfactory. Thereafter, MTRCL's IoW sent an email to Leighton regarding this matter.[19]

62. In order to address this issue, Leighton prepared a Non-Conformance Report (specifically, NCR-No.157) on 17th December 2015. This NCR was formally issued to Fang Sheung, and copied to MTRCL, on 18th December 2015.[20] As noted, the defective reinforcement bars had been rectified at the time of identification (i.e. before the NCR was issued).

63. Shortly thereafter, on 24th December 2015, both Leighton and MTRCL formally inspected and approved the completed installation of reinforcement bars in the area (which included the connections between the reinforcement bars and the couplers).

[19] Please refer to the witness statement of Edward Mok for a copy of this email.
[20] Please refer to the witness statements of Edward Mok and Andy Ip for a copy of this NCR.

Please see the relevant RISC form for confirmation of this inspection and approval by Leighton and MTRCL.[21]

64. On 27th December 2015, both Leighton and MTRCL conducted another formal inspection and approved the same works before concrete was poured for the relevant part of the EWL Slab. Please see the relevant RISC form for confirmation of this inspection and approval by MTRCL.[22] These inspections on 24th and 27th December 2015 confirmed that the work had been completed satisfactorily and that the concreting could proceed. On 28th December 2015, the concrete was poured to complete that area of the EWL Slab.

65. Thereafter, no further defective reinforcement bars (i.e. with the threaded ends cut off) were identified. In particular, Leighton does not have any knowledge of defective reinforcement bars being identified after 15th December 2015.

66. Aside from NCR-No.157, no other NCRs were raised regarding any quality issues concerning the joint between the diaphragm wall and the EWL Slab. In addition, no concrete was poured without prior inspection by, and authorisation from, MTRCL.

Response to Request 8(b)

67. The relevant text in Request 8(b) of the Letter of 24th July 2018 is as follows:

"***Identify the workers and persons*** *who witnessed such events and occasions.*"

68. The only person that Leighton can conclusively name as being present on all three occasions when defective reinforcement bars (i.e. bars with threaded ends cut off) were identified is Edward Mok (Leighton's engineer). However, other people were present with Edward at that time, including employees of MTRCL and Fang Sheung. For example, on 15th December 2015, MTRCL's Assistant IoW (Andy Wong) was also present at the joint inspection when some defective reinforcement bars were identified and replaced. Please refer to the witness statement of Edward Mok for more details.

[21] This RISC form has been exhibited to the witness statement of Edward Mok.
[22] This RISC form has been exhibited to the witness statement of Edward Mok.

69. Leighton has no knowledge of any of its employees or former employees:

(a) witnessing the threaded ends of any such reinforcement bar being cut off or shortened;

(b) cuting off or shortening the threaded ends of any such reinforcement bar; or

(c) giving any instruction, or allowing any person, to cut off or shorten the threaded ends of any such reinforcement bar.

Response to Request 8(c)

70. The relevant text in Request 8(c) of the Letter of 24th July 2018 is as follows:

"***Identify the workers and persons*** *who shortened, cut or defectively connected the steel bars and the party or entity which employed or engaged those workers and persons.*"

71. In relation to the three occasions from around September to December 2015 when a very small number of defective reinforcement bars were identified and rectified, Leighton does not know who cut off the threaded ends of such bars.

Response to Request 8(d)

72. The relevant text in Request 8(d) of the Letter of 24th July 2018 is as follows:

"*If the events and occasions were reported to you by your sub-contractors and/or other persons,* ***identify the person(s) who made the reports*** *to you.*"

73. The only third party who reported the identification of defective reinforcement bars to Leighton was MTRCL. This was in the form of the MTRCL's email sent on 15th December 2015 (as referred to at paragraph 61 above).[23]

74. Leighton received no contemporaneous reports from Jason Poon[24] and/or China Technology of there being defective reinforcement bars in the platforms slabs, of

[23] Please refer to the witness statement of Edward Mok for a copy of this email.
[24] Jason Poon is the Director and majority shareholder of China Technology.

reinforcement bars being cut or of reinforcement bars not being connected to couplers. Jason Poon first made allegations of defective reinforcement bars being installed in the EWL in January 2017, after the final concrete pour in December 2016. In January 2017, China Technology was pushing Leighton to renegotiate the terms of the subcontract with China Technology or to agree to make additional payments to China Technology. The allegations of defective reinforcement bars were investigated by Leighton and found to have no merit. The allegations were repeated in September 2017 and then only publicly in late May 2018.

75. The relevant communications between China Technology / Jason Poon and Leighton are referred to in the witness statement of Anthony Zervaas.[25] Other than as stated in this and other witness statements filed by Leighton, these relevant allegations made by China Technology / Jason Poon have no merit.

Response to Request 8(e)

76. The relevant text in Requests 8(e) of the Letter of 24th July 2018 is as follows:

"*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 or any of them and (iii) rectify*** *the Defective Steel Works.*"

77. Please refer to paragraphs 56 to 65 above, and the witness statements of Edward Mok and Andy Ip, for details of Leighton's response on the three occasions from around September to December 2015 when a very small number of defective reinforcement bars were identified and rectified.

78. On 6th January 2017, Jason Poon of China Technology sent an email to Anthony Zervaas and Joe Tam of Leighton alleging that defective reinforcement bars were installed in the EWL Slab.[26] Leighton takes all allegations of defective works seriously. As a result, and despite the fact that China Technology was raising these allegations many months after

[25] Please refer to the witness statement of Anthony Zervaas for a copy or details of these communications.
[26] Please refer to the witness statement of Anthony Zervaas for a copy of this email.

the relevant work on the EWL Slab was completed, Leighton sent an email MTRCL to inform them of Jason Poon's email[27] and proceeded to conduct an internal investigation into the installation of the reinforcement bars in the EWL Slab.

79. Leighton's internal investigation was led by Stephen Lumb, Head of Engineering for Leighton. Leighton produced a draft investigation report in January 2017 and a final investigation report in February 2017 (numbered LCAL.R13.02 and LCAL.R13.03 in the Index). The investigation concluded that the allegations had no merit.

80. In addition, Leighton had a very limited role in MTRC's investigation which led to the publication of MTRCL's report dated 15th June 2018 (the "**MTRCL Report**"). Please see paragraphs 141 and **Error! Reference source not found.** below for more details.

Response to Request 8(f)

81. The relevant text in Request 8(f) of the Letter of 24th July 2018 is as follows:

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

82. On the three occasions from September to December 2015 (as referred to in paragraphs 56 to 61 above) when defective reinforcement bars were identified, the MTRCL's engineer or IoW was present. In addition, Leighton notified Joe Cheung of Fang Sheung of the identification of these defective reinforcement bars on each occasion.[28]

83. In relation to the allegations made in Jason Poon's email dated 6th January 2017, please refer to Leighton's email to MTRCL regarding the allegations made by Jason Poon (as referred to at paragraph 78 above).[29]

Response to Request 8(g)

84. The relevant text in Request 8(g) of the Letter of 24th July 2018 is as follows:

[27] Please refer to the witness statement of Anthony Zervaas for a copy of this email.
[28] Please refer to the witness statements of Edward Mok and Andy Ip for more details.
[29] Please refer to the witness statement of Anthony Zervaas for more details.

"***Describe the responses, reactions and steps*** *taken by the recipient(s) and the relevant Main Parties in addressing Your Company's report.*"

85. In relation to the three occasions from September to December 2015 when defective reinforcement bars were identified:

    (a) please refer to the witness statements of Edward Mok and Andy Ip for more details on the reaction of MTRCL and Fang Sheung; and

    (b) The only written response from MTRCL was the email sent to Leighton on 15th December 2015.[30]

86. In relation to the allegations made in Jason Poon's email dated 6th January 2017 (as referred to at paragraph 78 above), MTRCL reviewed a copy of Leighton's investigation reports (as referred to at paragraph 79 above) but did not require Leighton to take any further action..

Response to Request 8(h)

87. The relevant text in Request 8(g) of the Letter of 24th July 2018 is as follows:

    "*Whether or not it was as a result of Your Company's report, please confirm and* ***identify the persons in the Main Parties*** *who Your Company believes might be* ***aware of the existence of the Defective Steel Works*** *at the material time and explain the basis of your belief.*"

88. The people that Leighton know were aware of the fact that defective reinforcement bars were identified from around September to December 2015 are:

    (a) Kobe Wong and Andy Wong from MTRCL; and

    (b) Joe Cheung from Fang Sheung.

89. Some of Fang Sheung's workers in Area C of the EWL Slab must also be aware of the defective reinforcement bars that were identified from around September to December

[30] Please refer to the witness statement of Edward Mok for a copy of this email.

2015. However, Leighton does not know the names of the relevant workers with such knowledge.

Response to Request 8(i)

90. The relevant text in Request 8(i) of the Letter of 24th July 2018 is as follows:

"***Provide Your Company's confirmation*** *that, other than the events and occasions cited in Your Company's reply to this paragraph, Your Company is not aware of any other Defective Steel Works in the diaphragm walls and platform slabs.*"

91. Other than as noted in this and the other witness statements filed by Leighton, Leighton is not aware of any other Defective Steel Works[31] in the diaphragm walls and platforms slabs.

Response to Request 8(j)

92. The relevant text in Request 8(i) of the Letter of 24th July 2018 is as follows:

"***Provide Your Company's confirmation*** *that, the diaphragm walls and the platform slabs as constructed and as they now stand fully comply with Requirements, Standards and Practice and explain in detail, and with the support of documentation, the bases of such confirmation.*"

93. Leighton confirms that the diaphragm walls and the platform slabs as constructed fully comply with Requirements, Standards and Practice.[32] Leighton provides this confirmation on the basis that:

(a) an approved system of supervision and inspection was in place throughout the works;[33]

(b) Leighton employed qualified engineers and experienced site supervision staff to supervise the construction of the works;

[31] As defined in the Letter of 24th July 2018.
[32] As defined in the Letter of 24th July 2018.
[33] Approved by MTRCL. Leighton's Site Supervision Plan was also submitted to BD.

(c) Leighton employed an experienced Quality Assurance team to manage and control documentation and ensure compliance with statutory requirements;

(d) Leighton employed a dedicated site based Design Management team that was responsible for the coordination, preparation and dissemination of technical documentation for the project;

(e) Leighton employed experienced and specialist subcontractors to carry out the works; and

(f) both Leighton and MTRCL inspected and approved the works.

Response to Request 9(a) to (c)

94. The relevant text in Requests 9(a) to (c) of the Letter of 24th July 2018 is as follows:

"*(a) Explain what difficulties and issues the workers had encountered in fixing the bars into the couplers.*

(b) Describe and explain the ***reasons*** *for such difficulties.*

(c) Explain and confirm ***how often or common*** *it was that workers would encounter difficulties in fixing the steel bars into couplers.*"

95. Leighton is not aware of any alleged issues and difficulties encountered by Fang Sheung that necessitated the threaded ends of reinforcement bars being shortened or cut off. As a result, Leighton cannot comment in response to Requests 9(b) to (c).

Response to Request 9(d)

96. The relevant text in Request 9(d) of the Letter of 24th July 2018 is as follows:

"*With the help of diagrams and drawings, indicate the* ***exact locations*** *of where the steel bars were shortened, cut or improperly connected within the diaphragm walls and platform slabs.*"

97. The very small number of defective reinforcement bars that were identified and rectified, on three occasions, from around September to December 2015 (as referred to in paragraphs 56 to 61 above) were in Area C of the EWL Slab. Please refer to the witness statement of Edward Mok for more details on the locations where such defective reinforcement bars were identified and rectified.

Response to Request 9(e) and (f)

98. The relevant text in Requests 9(e) and (f) of the Letter of 24th July 2018 is as follows:

"*(e) Confirm **whether requests and instructions have been given by Your Company to cut** the steel bars in order to meet the required length. Identify (with particulars) the worker(s) who referred the difficulties to Your Company and the person(s) in Your Company who requested and gave instructions for steel bars to be shortened or cut.*

*(f) Please state whether the requests 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.*"

99. Leighton did not give an instruction to cut off or shorten the threaded ends of any reinforcement bars.

Response to Request 9(g)

100. The relevant text in Requests 9(g) of the Letter of 24th July 2018 is as follows:

"*Please **provide contemporaneous written documents** recording Fang Sheung's reports on the said difficulties to Your Company and the requests and instructions given by Your Company (if there were any).*"

101. Leighton is not aware of:

(a) any alleged issues and difficulties encountered by Fang Sheung that necessitated the threaded ends of reinforcement bars being cut off; or

(b) any contemporaneous documents regarding such alleged issues and difficulties.

Response to Request 9(h)

102. The relevant text in Request 9(h) of the Letter of 24th July 2018 is as follows:

"*Explain **what Your Company had done or considered** before giving such requests and instructions to cut steel bars (if there were any).*"

103. Leighton did not give any instruction to cut off or shorten the threaded ends of any reinforcement bars.

Response to Request 9(i)

104. The relevant text in Request 9(i) of the Letter of 24th July 2018 is as follows:

"*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.***"

105. It is not common or accepted practice to cut off or shorten the threaded ends of reinforcement bars in order to connect them to couplers. It is not in compliance with the Requirements, Standards and Practice.

Response to Request 9(j)

106. The relevant text in Request 9(j) of the Letter of 24th July 2018 is as follows:

"*Explain and confirm whether such shortening and cutting of the steel bars within the diaphragm walls and platform slabs **would compromise the quality, safety and integrity of** the diaphragm walls and platform slabs.*"

107. The very small number of defective reinforcement bars that were identified on the three occasions from around September to December 2015 in Area C of the EWL Slab (as referred to in paragraphs 56 to 61 above) were replaced shortly after being identified. There is no evidence that any defective reinforcement bars (i.e. with the threaded ends cut off or shortened) are installed in the platform slabs and diaphragm walls.

Response to Request 9(k)

108. The relevant text in Request 9(k) of the Letter of 24th July 2018 is as follows:

> "*In cases where steel bars were shortened and inserted into the couplers but not to the full extent as specified under the Requirements, Standards and Practice, explain and confirm whether:*
>
> *(i) it would* ***compromise the quality, safety and integrity of*** *the diaphragm walls and platform slabs.*
>
> *(ii) it would be apparent on a visual inspection to supervisors and/or inspectors that the steel bars were shortened and cut and not properly inserted into the couplers.*
>
> *(iii) it is possible on inspection (visual or otherwise) to detect and identify that the steel bars were shortened and cut and not properly inserted into the couplers*"

109. Leighton is not aware of any reinforcement bars in the diaphragm walls or platforms slabs being shortened and inserted into couplers. The very small number of defective reinforcement bars that were identified on three occasions from around September to December 2015 in Area C of the EWL Slab were replaced shortly after being identified.

110. In any event, it should be apparent on a visual inspection of the connection between a reinforcement bar and a coupler whether the threaded ends of a reinforcement bar had been cut off. Indeed, this is how the very small number of defective reinforcement bars (as referred to above) were identified and rectified.

111. To the extent that the Commission is asking about the performance of the design of the permanent works, Leighton is not the appropriate party to comment on this question. Atkins designed the permanent works and is therefore best placed to comment on the performance of the design.

Response to Request 9(l)

112. The relevant text in Request 9(l) of the Letter of 24th July 2018 is as follows:

*"Explain and confirm whether there would have been **other effective solutions or steps** to resolve the issues and difficulties referred to Your Company by the workers and if so, why such solutions and steps were not taken by Your Company."*

113. Leighton is not aware of any alleged issues and difficulties encountered by Fang Sheung that necessitated the threaded ends of reinforcement bars being cut off.

Response to Request 10

114. The relevant text in Request 10 of the Letter of 24th July 2018 is as follows:

*"It has been suggested during the interviews given by Mr Poon to the media and in his remarks made in the RSC Meeting that China Technology had, on several occasions, complained to Your Company that it had concerns about Defective Steel Works in the diaphragm walls and platform slabs. An agreement was finally reached with Your Company in September 2017 in which Your Company had agreed to rectify the Defective Steel Works. It was on this basis that China Technology ceased to take its complaint further. Mr Poon pointed out, however, that pursuant to this agreement, China Technology was under an obligation to keep matters confidential. Please describe and explain in detail **the facts and events leading to this agreement** with China Technology (the **"Confidential Agreement"**) and the material facts and events thereafter. Please provide all relevant correspondence, emails, telephone records, text messages, written notes, records and reports and other **relevant documentation** on this subject including a copy of the Confidential Agreement."*

115. Please refer to the witness statement of Anthony Zervaas and my second witness statement for a detailed explanation of the facts and events leading up to the Confidential Agreement (i.e. the agreement reached between Leighton and China Technology on 15th September 2017 to mutually terminate the subcontract between the parties).

Response to Request 11

116. The relevant text in Request 11 of the Letter of 24th July 2018 is as follows:

"*Mr Poon also suggested to the press that Your Company had confirmed to China Technology in early 2018 that the agreed rectification works under the Confidential Agreement had already been completed. Please describe and explain (with reference to photographs, drawings and diagrams) all* ***rectification works carried out in the diaphragm walls and platform slabs*** *by Your Company.*"

117. No rectification works were agreed to be completed by Leighton under the Confidential Agreement.

118. In any event, and assuming that the Commission would like details of the other rectification work completed in the EWL Slab and NSL Slab, Leighton has prepared a table setting out the key information regarding such rectifications (numbered LCAL.R11.01 and LCAL.R11.02 in Index).

Response to Request 12(a)

119. The relevant text in Request 12(a) of the Letter of 24th July 2018 is as follows:

"***Comment*** *on Mr Poon's allegations.*"

120. The allegations made by Jason Poon have no merit.

121. The only facts that are relevant to allegations made by Jason Poon at the RSC Meeting and in other forums are set out in this witness statement and the witness statements filed by Leighton. These facts do not support or substantiate such allegations.

Response to Request 12(b)

122. The relevant text in Request 12(b) of the Letter of 24th July 2018 is as follows:

"*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.*"

123. Leighton is not aware of any hydraulic cutters being used to cut off or shorten the threaded ends of any reinforcement bars.

124. Leighton is not aware of the type of equipment or tools that Jason Poon is referring to as a hydraulic cutter. If Jason Poon is referring to the hydro-demolition (aka - hydro-jetting) equipment used for concrete trimming, this could not cut a steel reinforcement bar. Indeed, this equipment was used to remove concrete in order to expose couplers and reinforcement bars cast into the concrete without damaging the couplers or bars.

Response to Request 12(c)

125. The relevant text in Request 12(c) of the Letter of 24th July 2018 is as follows:

*"Please explain and confirm whether it is a **common practice within the construction industry to use a hydraulic cutter** to shorten or cut steel bars embedded or to be embedded within the diaphragm walls and platform slabs."*

126. It is not common or accepted practice to cut off or shorten the threaded ends of reinforcement bars in order to connect them to couplers. It is not in compliance with the Requirements, Standards and Practice.

Response to Request 12(d)

127. The relevant text in Request 12(d) of the Letter of 24th July 2018 is as follows:

*"Please confirm whether Your Company has **ordered or given instructions and/or approval to order any hydraulic cutters** for the purpose of shortening or cutting steel bars and if so, please produce all relevant correspondence, emails, instructions, approvals, purchase orders, delivery notes, manuals and literature on the model(s) of the hydraulic cutters used and the specifications thereof and other relevant documentation and records on this topic."*

128. Leighton did not instruct, or allow any person, to use or order any hydraulic cutter or any other tool to cut off or shorten the threaded ends of reinforcement bars.

Response to Request 12(e)

129. The relevant text in Request 12(e) of the Letter of 24th July 2018 is as follows:

"*Please also **identify** the workers and/or entities who carried out such shortening or cutting work by hydraulic cutters, and the persons and/or entities who gave instructions (i) for such work to be carried out and (ii) for hydraulic cutters to be acquired.*"

130. Leighton is not aware of any threaded reinforcement bars that were shortened or cut by the use of hydraulic cutters.

131. In relation to the very small number of defective reinforcement bars that were identified and rectified on three occasions from around September to December 2015, Leighton does not know who cut the threaded ends off such bars, how such bars were cut or who may have instructed them to be cut. Leighton can only repeat that none of its employees or former employees:

(a) witnessed the threaded ends of any reinforcement bar being cut off or shortened;

(b) cut off or shortened the threaded ends of any reinforcement bar; or

(c) gave an instruction, or allowed any person, to cut off or shorten the threaded ends of any reinforcement bar.

Response to Request 12(f)

132. The relevant text in Request 12(f) of the Letter of 24th July 2018 is as follows:

"*Given the existing state and condition of the diaphragm walls and platform slabs and public concern about their safety, describe and explain, to the best of Your Company's knowledge, **feasible method(s) (i) to ascertain whether Defective Steel Works do in fact exist and if so, the extent of such Defective Steel Works and (ii) to verify the safety and integrity** of the diaphragm walls and platform slabs. Please produce and provide the authorities relied on by Your Company on this topic*"

133. The most feasible method to ascertain whether any Defective Steel Works do in fact exist is by obtaining evidence from those people with direct knowledge of any defective reinforcement bars (i.e. with the threaded ends cut off). In order to assist the Commission

in this regard, Leighton has arranged for witness statements to be adduced by Edward Mok and Andy Ip (which have been provided to the Commission with this statement).

134. In addition, load testing could be done on the platforms slabs to verify the integrity and safety of the structures. In this regard, is notable that the diaphragm walls and platforms have been supporting significant loads since their completion, including works and passenger trains that have been using the EWL Slab.

135. Leighton does not recommend physically breaking open the concrete to check the connections between the reinforcement bars with couplers in the platform slabs and diaphragm wall. This would reduce the strength of the concrete and require significant and expensive strengthening and propping before the concrete was broken open so that the safety of the slabs and those carrying out the investigation would be ensured. There would then be the need for further remedial or replacement works. In any event, Leighton does not believe that it is necessary or appropriate to conduct such costly and damaging inspections. There is no reason to doubt the structural integrity and safety of the diaphragm walls and platform slabs. Indeed, Leighton does not believe any doubts would have been raised about the structural integrity and safety of the diaphragm walls and platform slabs if China Technology (specifically, Jason Poon) had not made the unsubstantiated allegations regarding the Defective Steel Works from late May 2018 onwards.

136. If the Commission proposes to conduct any tests or inspections on the platform slabs and diaphragm wall, Leighton requests an opportunity to comment on the methodology for such tests. Leighton also asks that it is consulted in relation to such tests or inspections because it will need to make practical and logistical arrangements to facilitate any tests or inspections being done on the site.

Response to Request 12(g)

137. The relevant text in Request 12(g) of the Letter of 24th July 2018 is as follows:

"On the assumption that the extent of the Defective Steel Works are more substantial than that stated in the MTRCL Report, describe and explain the ***effective ways and methods to***

strengthen the structure *of diaphragm walls and platforms slabs to ensure the safety and integrity thereof. Please produce and provide the authorities relied on by Your Company on this topic. Explain the consequences in the event that such Defective Steel Works remain unrectified.*"

138. Leighton was not responsible for the permanent works design. Leighton therefore suggests that this question is put to MTRCL's DDC (Atkins). In order to be able to answer this question, it is necessary to understand the extent and location of any alleged Defective Steel Works that are in the platform slabs and diaphragm walls (of which Leighton has no knowledge and has not seen any evidence), the overall behaviour of the structural system, and the purpose of the couplers at the interface between the platform slab and diaphragm walls. Without this understanding, it is impossible to propose any practical or specific strengthening measures.

139. There is no evidence to support "*the assumption that the extent of the Defective Steel Works are more substantial than that stated in the MTRCL Report*". Indeed, Leighton has not seen any evidence of any Defective Steel Works that were not rectified. On the assumption, however, that the extent of Defective Steel Works was greater than that stated in the MTRCL Report (which is contrary to the facts as Leighton understands them), Leighton does not accept that this would necessarily compromise the structural integrity and safety of the diaphragm walls and platform slabs. Even after applying all required load factors and material factors of safety as required by code, it would be highly unusual for a structure to be designed with no redundancy or designed to 100% efficiency. Typically structures in Hong Kong would be designed to 80-90% efficiency, which theoretically means that 10-20% of the coupler connections at the interface between the platforms slabs and diaphragm walls could be removed without any adverse impact on the design, or compliance with the code. It follows that even the complete omission of a small percentage of reinforcement bars should not have any significant consequence on the structural integrity and safety of the platform slabs and diaphragm walls. This would need to be verified by detailed design check.

Response to Request 13

140. The relevant text in Request 13 of the Letter of 24th July 2018 is as follows:

> *"As regards the interview(s) referred to in the MTRCL Report attended by 3 representatives of Your Company, please identify the 3 representatives concerned and **describe and explain Your Company's participation in MTRCL's investigation** which resulted in the MTRCL Report. Please **provide Your Company's comments** on the MTRCL Report. Please **adduce** all the documents which were given to MTRCL pursuant to its request (see pages 9 and 10 of the MTRCL Report)."*

141. Leighton had a very limited role in the MTRCL's investigation in June 2018 which led to the publication of the MTRCL Report on 15th June 2018. Leighton's involvement was limited to providing some documents and (numbered LCAL-R13.01 in the Index) arranging for three of its employees (Will Holden, Kevin Harmann and Gary Chow) to attend interviews with the MTRCL on very short notice and without prior notice of the questions that would be asked. These individuals do not have relevant knowledge of the allegation that the threaded ends of reinforcement bars were cut off or shortened. As such, Leighton has not submitted witness statements from these individuals.

142. Leighton's detailed response to the MTRCL Report is produced and marked **Exhibit "LCAL-2"**.

Response to Request 14

143. The relevant text in Request 14 of the Letter of 24th July 2018 is as follows:

> *"As mentioned at the outset of this letter, upon receipt of the MTRCL Report and on the basis of further information provided separately by the MTRCL to the HyD, the HyD considered the matter might involve criminal elements and reported the matter to the Police on 15 June 2018. Please produce **all statement(s) given to the Police**."*

144. No statements have been given to the Police.

Response to Request 15

145. The relevant text in Request 15 of the Letter of 24th July 2018 is as follows:

> "*Apart from the Defective Steel Works, please confirm whether, in respect of the diaphragm wall and platform slab construction works at the Hung Hom Station Extension under Contract 1112 of the SCL Project, Your Company has knowledge of* ***any other works*** *which raise concerns about public safety and if so, describe and set out all the facts and circumstances surrounding such other works.*"

146. Leighton does not know of any other works which should raise concerns about public safety.

Response to Request 16

147. The relevant text in Request 16 of the Letter of 24th July 2018 is as follows:

> "*Finally, in relation to paragraph (c) of the Terms of Reference, describe and explain, from the perspective of a main contractor in a large scale project involving multiple parties and stakeholders, the* ***suitable measures which could be taken in the future*** *to promote public safety and assurance on quality of works.*"

148. Leighton has no comment on such suitable measures at this time.

Dated the 14th day of September 2018.

Signed: _____

Karl Speed for and on behalf of Leighton Contractors (Asia) Limited