

**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**

**Joint Statement of  
Project Management Experts**

**Without Prejudice**

Prepared by

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9 January 2019

## **Joint Statement of Project Management Experts**

1. This Joint Statement has been prepared by Mr. Steve Rowsell (Project Management Expert for the Commission) and Mr. Steve Huyghe (Project Management Expert for MTRCL). We have met and discussed on a without prejudice basis all of the relevant project management topics<sup>1</sup> as set out in our respective Expert Report.
2. We have reached agreement on nearly all the major project management issues and, in addition, have set out in this Joint Statement our suggestions on ways to improve the project management systems. Our independent expert reports set out the full list of recommendations we have each identified.

### **A. MTRCL'S OVERALL PROJECT MANAGEMENT OBLIGATIONS**

3. We agree that MTRCL is a very experienced organization with extensive experience and capability in the planning, delivery and operation of railway networks and systems in Hong Kong<sup>2</sup>.
4. We acknowledge that MTRCL has a proven track record in delivering many major railway projects<sup>3</sup>.
5. We agree that it is common that some mistakes or oversights will inevitably be made in the performance of the works of such scale and complexity. However, procedures should be in place to mitigate errors and enable the works to be executed in a professional manner<sup>4</sup>.
6. We agree that MTRCL's overall project management obligations are defined and set forth in the Entrustment Agreement (EA3), MTRCL's PMP, PIMS, BD's Instrument of Exemption, BD's Code of Practice for Site Supervision 2009, the contract documents between MTRCL and Leighton and the Quality Supervision Plan for coupler installation as per BD's Acceptance Letters.
7. We agree that MTRCL has a thorough knowledge and understanding of its responsibilities and duties associated with delivering the Entrustment Activities<sup>5</sup> for a project of this magnitude and complexity.

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<sup>1</sup> Huyghe Report does not address the issues pertaining procurement, forms of contracts such as the use of Target Cost Contract, and the Government's monitoring and control mechanism.

<sup>2</sup> Rowsell Report, §8a; Huyghe Report, §84.

<sup>3</sup> Huyghe Report, §120. These major railway projects include the Airport Express Line, the Tseung Kwan O Line, the Disneyland Resort Line, the West Island Line, the Kwun Tong Line Extension, the South Island Line, and the Express Rail Link, which was most recently opened in 2018 and constructed using the concession approach.

<sup>4</sup> Rowsell Report, §3, 8g; Huyghe Report, §36, §53, §63

<sup>5</sup> MTRCL's project management obligations are set out in the EA3 Clause 4.6(C).

**B. MTRCL'S PROJECT MANAGEMENT PLAN (PMP) AND PROJECT INTEGRATED MANAGEMENT SYSTEM (PIMS)**

8. We agree that the PIMS is defined in the PMP and includes manuals, procedures and practice notes and provides a robust basis for the development and implementation of project specific plans <sup>6</sup>.
9. We agree that the PIMS is accredited with ISO 9001 <sup>7</sup> and the PIMS undergoes periodic internal review and external audits to ensure it stays up to date to serve its purpose in the management of railway projects <sup>8</sup>.
10. We suggest that certain improvements can be made to the PIMS as follows:
  - a. Review the PIMS manuals and identify any broad language that can be converted into project specific information.
  - b. Review and refresh the older documents in the PIMS system.
  - c. Consider opportunities to rationalise or combine documents to reduce the overall numbers to which practitioners have to refer.
  - d. It would be desirable to be more specific about which PIMS manuals are applicable to a project and job roles rather than just including a long list of all PIMS documents.
11. Whilst we are not fully agreed about the adequacy of the Project Management Plan, we do agree there is room for improvement, and additional modifications can and should be made. Our suggestions for improvement include:
  - a. Consideration should be given to preparing a cross-referencing system between the PMP and the PIMs to help identify the roles and responsibilities of the various staff members, including contractual roles and responsibilities.
  - b. Review and improve the detailed content of the PMP, to make them more comprehensive and relevant to the project by translating generic guidance into project specific requirements.
  - c. Consider the inclusion in the PMP of proposals for any project partnering arrangements and initiatives.

**C. CHANGE IN CONNECTION DETAIL AT THE TOP OF DIAPHRAGM WALL**

12. We agree that, even though interactions had occurred, there was a lack of meaningful communications between MTRCL's DM and CM teams, Leighton, and Atkins.
13. We agree that the modification works at the top of the Diaphragm Walls should not have proceeded without approved working drawings.
14. Suggestions on how the communications between MTRCL's CM and DM teams can be improved include:

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<sup>6</sup> Rowsell Report, §19; Huyghe Report, §75.

<sup>7</sup> Rowsell Report, §26.

<sup>8</sup> Rowsell Report, §26, §28; Huyghe Report, §77, §84.

- a. Review the liaison arrangements between the Contractor's design team, the DA and MTRCL's design and construction management teams to ensure that there a common understanding of submission requirements and that all parties are aware of design issues and the forward programme submissions.
- b. Develop and implement the use of BIM as a collaboration tool.

**D. ATKINS' DUAL ROLES IN SUPPORTING MTRCL AND LEIGHTON**

15. We agree that it is not a good practice for the same design firm (i.e. Atkins <sup>10</sup>) to provide services to the Employer and to also represent the Contractor in making design revisions or modifications, because it poses a real or perceived conflict of interest <sup>11</sup>.
16. We agree that MTRCL should develop a conflict of interest policy and procedure for a conflict of interest check on all design related services.

**E. REBAR/COUPLER INSPECTION AT THE EWL SLAB**

17. We agree that if the bottom layers of the rebar are obscured by the subsequent top layers, then an individual inspection by layer (or by mat <sup>12</sup>) should have been performed <sup>13</sup>. Separate inspection forms (i.e. one for top mat and one for bottom mat) should have been prepared for signing off the rebar inspections.
18. We agree that MTRCL and Leighton should have followed the QSP requirements regarding the logging, execution and filing of the Record Sheets for coupler inspection <sup>14</sup>.
19. We agree that the factual testimony as we have read states that the defective rebar/coupler installations were identified during the course of construction and corrected on the same day, albeit for three rebar/coupler installations that were encased in concrete.

**F. PROCESS OF NON-CONFORMANCE REPORTING**

20. We agree that the PIMS <sup>16</sup> provides the definition of Works NCR, which also provides guidelines regarding "*Minor defects reported in routine inspections*". The PMP and the CoP however, state that if any non-conformity arises it should be the subject of a NCR. We agree that this inconsistency between the documents should be clarified.

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<sup>10</sup> Atkins' Team A was appointed by MTRCL as its Detailed Design Consultant under MTRCL's Consultancy Agreement 1116; Atkins' Team B was appointed by Leighton as its Temporary Works Designer.

<sup>11</sup> Rowsell Report, §53; Huyghe Report, §144.

<sup>12</sup> There are top mats and bottom mats of rebar at the 3 metre thick EWL slab. Each mat comprises no more than three layers of rebars connecting into the Diaphragm Walls.

<sup>13</sup> Rowsell Report, §83; Huyghe Report, §198-200.

<sup>14</sup> Rowsell Report, §73; Huyghe Report, §64.

<sup>16</sup> PIMS Practice Note, PIMS/PN/11-4/A4 Monitoring of Site Works, Exhibit 7.9 Guidelines for Raising Contract-level Works NCR.

21. We agree that all NCRs received should be entered into a single NCR database and they should be logged and tracked, and should not be taken lightly and require proper investigation and implementation of corrective measures <sup>17</sup>.
22. We agree that an NCR need not be issued if the defective work is identified, corrected and immediately signed off on the same day. However, all site supervision and construction engineering teams <sup>18</sup> should be made aware of this defective work and put on notice. If such defective work occurs again, an NCR should be issued.

**G. PRODUCTION OF AS-BUILT DRAWINGS**

23. We agree that it is Leighton's scope of work to produce the as-built drawings and submit the same to MTRCL. The General Specification to the contract sets out that the as-built records and drawings shall be produced on a progressive basis. The as-built records comprise a wide spectrum of records including material submissions, test certificates, construction records (such as TQs, RFIs, photographs) and as-built drawings <sup>19</sup>.
24. We agree that MTRCL is obliged to submit as-built records and drawings to the Government.
25. We agree that the documentation setting as-built records requirements should be reviewed for consistency and clarity of responsibilities. The arrangements should ensure that records and submitted progressively and promptly.

**H. FULL-TIME AND CONTINUOUS SUPERVISION**

26. We agree that "*full-time and continuous supervision*" does not mean "*man-marking*". The requirements for supervision by the Contractor are set out in the General Specification and require a minimum ratio of 1 supervisor to no more than 10 workers.
27. We are agreed that the obligation on MTRCL was to supervise at least 20% of the splicing assemblies. We are agreed that MTRCL had in place a supervision team comprising engineers and inspectors who had a continuous presence on site to undertake the supervision duties. We are also agreed however, that there was a lack of clarity for the designated responsibility of formal inspections and for maintaining records.
28. Suggestions we have for how the specification of supervision duties could be improved in the future include:
  - a. Develop a clear definition of supervision for the purposes of contractual obligations and adopt consistent approach to terminology throughout the documentation. The requirements need to be specific about the information that needs to be recorded and certified.

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<sup>17</sup> Rowsell Report, §98; Huyghe Report, §212.

<sup>18</sup> These include MTRCL's Construction Engineers and Site Inspectorate Team; Leighton's Construction Engineering Team and Site Supervision Team.

<sup>19</sup> Huyghe Report, §127.

- b. Review the current documents containing requirements in relation to supervision duties and aim to produce an all-inclusive supervision manual accessible to all involved in supervision duties and produced in multi-languages as required.
- c. Review options for the use of technology to support efficiency and effectiveness in undertaking site supervision and record-keeping duties.

**Signed**



**Steve Rowsell**

Commission's Project Management Expert



**Steve Huyghe**

MTRCL's Project Management Expert

Dated the 9<sup>th</sup> day of January 2019